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ME

From: Seharaseyon, Jegatheesan  
Sent: Wednesday, October 26, 2005 10:45 AM  
To: STIC-Biotech/ChemLib  
Subject: Re: 10/719472  
  
Importance: High

Please search SEQ ID NO: 2 and 3 in commercial databases.

Thanks,  
Seyon.

J.Seharaseyon  
Art Unit 1647  
Remsen 4C61  
Mailbox 4C70  
Phone: (571)-272-0892  
Fax: (571)-273-0892

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OCT 26 2005

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Searcher: \_\_\_\_\_  
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Date completed: \_\_\_\_\_  
Searcher Prep Time: \_\_\_\_\_  
Online Time: \_\_\_\_\_

\*\*\*\*\*  
Type of Search  
NA# \_\_\_\_\_ AA#: \_\_\_\_\_  
S/L: \_\_\_\_\_ Oligomer: \_\_\_\_\_  
Encode/Transl: \_\_\_\_\_  
Structure #: \_\_\_\_\_ Text: \_\_\_\_\_  
Inventor: \_\_\_\_\_ Litigation: \_\_\_\_\_

\*\*\*\*\*  
Vendors and cost where applicable  
STN: \_\_\_\_\_  
DIALOG: \_\_\_\_\_  
QUESTEL/ORBIT: \_\_\_\_\_  
LEXIS/NEXIS: \_\_\_\_\_  
SEQUENCE SYSTEM: \_\_\_\_\_  
WWW/Internet: \_\_\_\_\_  
Other (Specify): \_\_\_\_\_

THIS PAGE IS A WORK IN PROGRESS

Run on:	October 28, 2005, 14:51:03	Search time 24.5 Seconds (without alignments)	524.067 Million cell updates/sec	
Title:	US-10-719-472-2			
Perfect score:	907			
Sequence:	1 CYLSRKMLDARENKLDR.....TVSTTLQRKLTXMGDDNSP 172			
Scoring table:	BLOSUM62			
Gapopen:	10.0			
Searched:	513545 seqs, 74649064 residues			
Total number of hits satisfying chosen parameters:	513545			
Minimum DB seq length: 0				
Maximum DB seq length: 2000000000				
Post-processing: Minimum Match 0%				
	Maximum Match 100%			
	Listing First 45 summaries			
Database :	Issued_Patents_AA:*			
	1: /cgnd_6/_ptodata/1/iaa/5A_COMB.pep:*			
	2: /cgnd_6/_ptodata/1/iaa/5B_COMB.pep:*			
	3: /cgnd_6/_ptodata/1/iaa/6A_COMB.pep:*			
	4: /cgnd_6/_ptodata/1/iaa/6B_COMB.pep:*			
	5: /cgnd_6/_ptodata/1/iaa/backfiles1.COMB.pep:*			
	6: /cgnd_6/_ptodata/1/iaa/backfiles1.pep:*			
Pred.	No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.			
	SUMMARIES			
Result No.	Score	Query Length	DB ID	Description
1	907	100.0	172	1 US-08-438-753B-2
2	907	100.0	172	1 US-08-443-88A-2
3	907	100.0	172	2 US-08-531-32B-2
4	907	100.0	172	2 US-08-455-52A-2
5	907	100.0	172	2 US-08-455-02B-2
6	907	100.0	172	3 US-09-045-467-2
7	907	100.0	172	3 US-08-954-39A-18
8	907	100.0	172	3 US-08-616-904-2
9	99.2	172	4	US-09-599-413-2
10	99.0	172	4	US-09-599-413-7
11	89.6	172	4	US-09-599-413-9
12	89.6	172	4	US-09-599-413-18
13	89.6	172	4	US-09-599-413-20
14	89.5	172	4	US-09-599-413-4
15	89.4	172	4	US-09-599-413-5
16	89.4	172	4	US-09-599-413-10
17	89.4	172	4	US-09-599-413-19
18	89.3	172	4	US-09-599-413-6
19	89.0	98.1	172	4 US-09-599-413-8
20	857.5	94.5	196	4 US-09-487-79-12
21	857.5	94.5	196	4 US-09-968-594-12
22	723	79.7	195	4 US-09-792-11
23	723	79.7	195	4 US-09-908-594-11
24	612	67.5	172	1 US-08-738-73B-4
25	612	67.5	172	1 US-08-438-73B-44
26	612	67.5	172	1 US-08-443-883A-4
27	612	67.5	172	1 US-08-443-883A-44

## ALIGNMENTS

RESULT 1  
US-08-438-753B-2  
Sequence 2, Application US/08438753B  
; Patent No. 5705363  
; GENERAL INFORMATION:  
; APPLICANT: Inakawa, Kazuhito  
; TITLE OF INVENTION: Interferon Tau Compositions and  
; Methods of Use  
; NUMBER OF SEQUENCES: 44  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08-438-753B  
; FILING DATE: 10-MAY-1995  
; CLASSIFICATION: 435  
; PRIORITY APPLICATION DATA:  
; APPLICATION NUMBER: US 08/139, 891  
; FILING DATE: 19-OCT-1993  
; PRIORITY APPLICATION DATA:  
; APPLICATION NUMBER: US 07/847, 741  
; FILING DATE: 09-MAR-1992  
; PRIORITY APPLICATION DATA:  
; APPLICATION NUMBER: US 07/318, 050  
; FILING DATE: 02-MAR-1989  
; PRIORITY APPLICATION DATA:  
; APPLICATION NUMBER: US 07/969, 890  
; FILING DATE: 30-OCT-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Shultz, Charles K.  
; REGISTRATION NUMBER: 38, 615  
; REFERENCE/DOCKET NUMBER: 5600-0001.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 415-324-0880  
; TELEFAX: 415-324-0960  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 172 amino acids  
; TYPE: amino acid  
; TOPOLOGY: Linear  
; MOLECULE TYPE: protein

; ORIGINAL SOURCE: amino acid sequence of a mature  
 ; INDIVIDUAL ISOLATE: Oviflntau protein  
 US-08-438-753B-2

Query Match 100.0% Score 907; DB 1; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDRNRLNPLSPHSCLQRDKFGLPQEMVEDQLQKDQAFFVYEM 60  
 Db 1 CYLSRKMLDARENKLIDRNRLNPLSPHSCLQRDKFGLPQEMVEDQLQKDQAFFVYEM 60

Qy 61 LQQSFNLNFYTHSSAAWDTTLEQLTGLOQQLDHLTCRQVMGEDESGNNMDPIVTY 120  
 Db 61 LQQSFNLNFYTHSSAAWDTTLEQLTGLOQQLDHLTCRQVMGEDESGNNMDPIVTY 120

Qy 121 KKYFOGTYDYLQEKGYSDCAWEVIRVEMMRALTVSTTLQKRLTKNGGDINS P 172  
 Db 121 KKYFOGTYDYLQEKGYSDCAWEVIRVEMMRALTVSTTLQKRLTKNGGDINS P 172

---

RESULT 2  
 ; Sequence 2, Application US/08443883A

; GENERAL INFORMATION:  
 ; Parent No. 5738845

; APPLICANT: Bazer, Fuller W.  
 ; APPLICANT: Johnson, Howard M.  
 ; APPLICANT: Pontzer, Carol H.  
 ; APPLICANT: Ott, Tracy L.  
 ; APPLICANT: Van Heeke, Gino  
 ; APPLICANT: Imakawa, Kazuhito  
 ; TITLE OF INVENTION: Interferon Tau Compositions and  
 ; METHODS OF USE:  
 ; NUMBER OF SEQUENCES: 44

; CORRESPONDENCE ADDRESS:  
 ; STREET: 350 Cambridge Ave., Suite 250  
 ; CITY: Palo Alto  
 ; STATE: CA  
 ; COUNTRY: USA  
 ; ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC Compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patentn Release #1.0, Version #1.25  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/443,883A  
 FILING DATE:

CLASSIFICATION: 435  
 PRIORITY APPLICATION DATA:  
 APPLICATION NUMBER: US 08/139,891  
 FILING DATE: 19-OCT-1993

PRIORITY APPLICATION DATA:  
 APPLICATION NUMBER: US 07/847,741  
 FILING DATE: 09-MAR-1992

PRIORITY APPLICATION DATA:  
 APPLICATION NUMBER: US 07/318,050  
 FILING DATE: 02-MAR-1989

PRIORITY APPLICATION DATA:  
 APPLICATION NUMBER: US 07/969,890  
 FILING DATE: 30-OCT-1992

ATTORNEY/AGENT INFORMATION:  
 NAME: Fabian, Gary R.  
 REGISTRATION NUMBER: 33,875  
 REFERENCE/DOCKET NUMBER: 5600-0001.30  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 415-324-0960  
 FAX: 415-324-0960

INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein

ORIGINAL SOURCE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Oviflntau protein  
 US-08-443-883A-2

Query Match 100.0% Score 907; DB 1; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDRNRLNPLSPHSCLQRDKFGLPQEMVEDQLQKDQAFFVYEM 60  
 Db 1 CYLSRKMLDARENKLIDRNRLNPLSPHSCLQRDKFGLPQEMVEDQLQKDQAFFVYEM 60

Qy 61 LQQSFNLNFYTEHSSAAWDTTLEQLTGLOQQLDHLTCRQVMGEDESGNNMDPIVTY 120  
 Db 61 LQQSFNLNFYTEHSSAAWDTTLEQLTGLOQQLDHLTCRQVMGEDESGNNMDPIVTY 120

Qy 121 KKYFOGTYDYLQEKGYSDCAWEVIRVEMMRALTVSTTLQKRLTKNGGDINS P 172  
 Db 121 KKYFOGTYDYLQEKGYSDCAWEVIRVEMMRALTVSTTLQKRLTKNGGDINS P 172

---

RESULT 3  
 US-08-631-328-2

; Sequence 2, Application US/08631328  
 ; Patent No. 5939286

; GENERAL INFORMATION:  
 ; APPLICANT: Johnson, Howard M.  
 ; APPLICANT: Pontzer, Carol H.  
 ; APPLICANT: Subramanian, Prem S.  
 ; TITLE OF INVENTION: Hybrid Interferon Compositions and  
 ; METHODS OF USE:  
 ; NUMBER OF SEQUENCES: 55

; CORRESPONDENCE ADDRESS:  
 ; STREET: 350 Cambridge Ave., Suite 250  
 ; CITY: Palo Alto  
 ; STATE: CA  
 ; COUNTRY: USA  
 ; ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS MS-DOS  
 SOFTWARE: Patentn Release #1.0, Version #1.25  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/631,328  
 FILING DATE: 12-APR-1996

CLASSIFICATION: 435  
 PRIORITY APPLICATION DATA:  
 APPLICATION NUMBER: US 08/438,753  
 FILING DATE: 10-MAY-1995

ATTORNEY/AGENT INFORMATION:  
 NAME: Sholtz, Charles K.  
 REGISTRATION NUMBER: 38,615  
 REFERENCE/DOCKET NUMBER: 5600-0001.34  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 415-324-0880  
 FAX: 415-324-0960

INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein

ORIGINAL SOURCE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Oviflntau protein  
 US-08-631-328-2



SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature Ovintau protein  
 INDIVIDUAL ISOLATE: Ovintau protein

RESULT 6

US-045-467-2

Query Match 100.0%; Score 907; DB 2; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQDRKDFGLPQMVQEDQLQDAFPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQDRKDFGLPQMVQEDQLQDAFPVLYEM 60  
 Qy 61 DQQSNFLPYTHSSAWDTTLBQQLTGLOQLDHDTCRGQVMSEBDSELGNMDPVY 120  
 Db 61 DQQSNFLPYTHSSAWDTTLBQQLTGLOQLDHDTCRGQVMSEBDSELGNMDPVY 120  
 Qy 121 KKYFGQIYDYLQEGYSQCAWEIVRVMEMRALTVTSTLQRRLTKNGGDLNSP 172  
 Db 121 KKYFGQIYDYLQEGYSQCAWEIVRVMEMRALTVTSTLQRRLTKNGGDLNSP 172

RESULT 6

US-045-467-2

Sequence 2, Application US/09045467

GENERAL INFORMATION:  
 APPLICANT: Johnson, Howard M.  
 PONTER, Carol H.

TITLE OF INVENTION: Interferon Tau Compositions and Methods of Use

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Dehlinger & Associates  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC/DOS/MS-DOS  
 SOFTWARE: PatentIn Release #1.0, Version #1.25

CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/09/045467  
 FILING DATE: 20-Mar-1998  
 CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/455,021  
 FILING DATE: 31-MAY-1995  
 APPLICATION NUMBER: US 08/438,753  
 FILING DATE: 10-MAY-1995  
 APPLICATION NUMBER: US 08/139,891  
 FILING DATE: 19-OCT-1993  
 APPLICATION NUMBER: US 07/847,741  
 FILING DATE: 09-MAR-1992  
 APPLICATION NUMBER: US 07/318,050  
 FILING DATE: 02-MAR-1989  
 APPLICATION NUMBER: US 07/969,890  
 FILING DATE: 30-OCT-1992

ATTORNEY/AGENT INFORMATION:  
 NAME: Dehlinger, Peter J.  
 REGISTRATION NUMBER: 28,006  
 REFERENCE/DOCKET NUMBER: 5600-0001.36

TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0960

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature Ovintau protein

SEQUENCE DESCRIPTION: SEQ ID NO: 2:

US-09-045-467-2

RESULT 7

US-08-954-395A-18

Sequence 18, Application US/08954395A

GENERAL INFORMATION:  
 APPLICANT: Johnson, Howard M.  
 SUBRAMANIAN, Pram S.  
 PONTZER, Carol H.  
 VILLARETE, Loralee H.  
 CAMPOS, Jacqueline  
 CHUNG, Albert D.  
 LIU, Wayne W.  
 APPLICANT: Liu, Philip T.

TITLE OF INVENTION: LOW-TOXICITY HUMAN INTERFERON-ALPHA ANALOG

NUMBER OF SEQUENCES: 35

CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Denlinger & Associates LLP  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Diskette  
 COMPUTER: IBM Compatible  
 OPERATING SYSTEM: DOS  
 SOFTWARE: FastSeq for Windows Version 2.0

CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/954,395A  
 FILING DATE: Filed Herewith  
 CLASSIFICATION: 435

PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 08/631,328  
 FILING DATE: 12-APR-1996  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Denlinger, Peter J.  
 REGISTRATION NUMBER: 27008  
 REFERENCE/DOCKET NUMBER: 5600-0001.35  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0960

INFORMATION FOR SEQ ID NO: 18:

SEQUENCE CHARACTERISTICS:



Query Match 99.0%; Score 898; DB 4; Length 172;  
 Best Local Similarity 98.8%; Fred. No. 5.4e-99;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60

Qy 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120  
 Db 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120

Qy 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172  
 Db 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172

RESULT 11  
 US-05-599-413-9  
 ; Sequence 9, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: US/09/599,413  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 20  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-05-599-413-9

Query Match 98.8%; Score 896; DB 4; Length 172;  
 Best Local Similarity 98.8%; Fred. No. 9.4e-99; Length 172;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60

Qy 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120  
 Db 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120

Qy 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172  
 Db 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172

RESULT 12  
 US-05-599-413-18  
 ; Sequence 18, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 18  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-09-599-413-18

Query Match 98.8%; Score 896; DB 4; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.4e-99; Length 172;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60

Qy 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120  
 Db 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120

Qy 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172  
 Db 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172

RESULT 13  
 US-09-599-413-20  
 ; Sequence 20, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 20  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-09-599-413-20

Query Match 98.8%; Score 896; DB 4; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.4e-99; Length 172;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVEGDQLQKDQAPPVLYEM 60

Qy 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120  
 Db 61 IQQSNFLYTHSSAAWDTTLEQLCGLQQLDHTCQGMGEEDSFLGNDPIVTY 120

Qy 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172  
 Db 121 KKYFQGIYDYLQEKGSYSDCAWEIVRVMRALTYSTTLQRRLTRNGGDLNSP 172

RESULT 14  
 US-09-599-413-4  
 ; Sequence 4, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 4  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-09-599-413-4

US-09-599-413-4

Query Match 98.7%; Score 895; DB 4; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 1.2e-98;  
 Matches 170; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENILKIDRMNRLSPHSICLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Db 1 CYLSRKMLDARENILKIDRMNRLSPHSICLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Qy 61 LOQSFNLFTYHSSAAMDTTLIEQLCTGLQOQLDHTCRGVGMGEBDSEIGNMDPIVT 120  
 Db 61 LOQSFNLFTYHSSAAMDTTLIEQLCTGLQOQLDHTCRGVGMGEBDSEIGNMDPIVT 120  
 Qy 121 KKYFQGIYDYLQBKGSYSDCAWEIVRVMMAALTSTTLQKRLTKGDLNSP 172  
 Db 121 KKYFQGIYDYLQBKGSYSDCAWEIVRVMMAALTSTTLQKRLTKGDLNSP 172

RESULT 15

US-09-599-413-5

Sequence 5, Application US/09599413

Patent No. 683256

GENERAL INFORMATION:

APPLICANT: Pontzer, Carol H

TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them

FILE REFERENCE: interferon tau

CURRENT APPLICATION NUMBER: US/09/599,413

CURRENT FILING DATE: 2000-06-22

PRIOR APPLICATION NUMBER: 60/140,411

PRIOR FILING DATE: 1999-06-22

NUMBER OF SEQ ID NOS: 20

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 5

LENGTH: 172

TYPE: PRT

ORGANISM: ovine

US-09-599-413-5

Query Match 98.6%; Score 894; DB 4; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 1.6e-98;  
 Matches 170; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENILKIDRMNRLSPHSICLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Db 1 CYLSRKMLDARENILKIDRMNRLSPHSICLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Qy 61 LOQSFNLFTYHSSAAMDTTLIEQLCTGLQOQLDHTCRGVGMGEBDSEIGNMDPIVT 120  
 Db 61 LOQSFNLFTYHSSAAMDTTLIEQLCTGLQOQLDHTCRGVGMGEBDSEIGNMDPIVT 120  
 Qy 121 KKYFQGIYDYLQBKGSYSDCAWEIVRVMMAALTSTTLQKRLTKGDLNSP 172  
 Db 121 KKYFQGIYDYLQBKGSYSDCAWEIVRVMMAALTSTTLQKRLTKGDLNSP 172

Search completed: October 28, 2005, 15:01:47  
 Job time : 25.5 secs

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OM protein - protein search, using sw model

Run on: October 28, 2005, 14:52:27 ; Search time 113 Seconds  
 (without alignments)  
 636.313 Million cell updates/sec

Title: US-10-719-472-2

Perfect score: 907

Sequence: 1 CYLSRKIMLDARENKLDR.....TVSTTLQKRLTKMGDDLNSP 172

Scoring table: BLOSUM62

Gapext 0.5

Searched: 1865214 seqs, 418043040 residues

Total number of hits satisfying chosen parameters: 1865214

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
 Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA: \*

1: /cgn2\_6/ptodata/1/pubpa/us07\_PUBCCOMB.pep:\*

2: /cgn2\_6/ptodata/1/pubpa/us05\_PCT\_NEW\_PUB.pep:\*

3: /cgn2\_6/ptodata/1/pubpa/us06\_NEW\_PUB.pep:\*

4: /cgn2\_6/ptodata/1/pubpa/us06\_PUBCCOMB.pep:\*

5: /cgn2\_6/ptodata/1/pubpa/PCTUS\_PUBCOMB.pep:\*

6: /cgn2\_6/ptodata/1/pubpa/us08\_NEW\_PUB.pep:\*

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9: /cgn2\_6/ptodata/1/pubpa/us09A\_PUBCOMB.pep:\*

10: /cgn2\_6/ptodata/1/pubpa/us09\_PUBCOMB.pep:\*

11: /cgn2\_6/ptodata/1/pubpa/us09C\_PUBCOMB.pep:\*

12: /cgn2\_6/ptodata/1/pubpa/us09\_NEW\_PUB.pep:\*

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14: /cgn2\_6/ptodata/1/pubpa/us10B\_PUBCOMB.pep:\*

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16: /cgn2\_6/ptodata/1/pubpa/us10D\_PUBCOMB.pep:\*

17: /cgn2\_6/ptodata/1/pubpa/us10\_E\_PUBCOMB.pep:\*

18: /cgn2\_6/ptodata/1/pubpa/us10\_NEW\_PUB.pep:\*

19: /cgn2\_6/ptodata/1/pubpa/us11A\_PUBCOMB.pep:\*

20: /cgn2\_6/ptodata/1/pubpa/us11B\_PUB.pep:\*

21: /cgn2\_6/ptodata/1/pubpa/us60\_NEW\_PUB.pep:\*

22: /cgn2\_6/ptodata/1/pubpa/us60\_NEW\_PUBCOMB.pep:\*

RESULT 1  
 US-10-719-472-2  
 ; Sequence 2, Application US/09746919-2  
 ; Patent No. US20030013452A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Johnson, Howard M.  
 ; ATTORNEY OR AGENT: Pontzer, Carol H.  
 ; TITLE OF INVENTION: Interferon Tau Compositions and  
 ; METHODS OF USE  
 ; NUMBER OF SEQUENCES: 44  
 ; CORRESPONDENCE ADDRESS:  
 ; ADDRESSEE: Behlinger & Associates  
 ; STREET: 350 Cambridge Ave., Suite 250  
 ; CITY: Palo Alto  
 ; STATE: CA  
 ; COUNTRY: USA  
 ; ZIP: 94306  
 ; COMPUTER READABLE FORM:  
 ; MEDIUM TYPE: Floppy disk  
 ; COMPUTER: IBM PC Compatible  
 ; OPERATING SYSTEM: PC-DOS/MS-DOS  
 ; SOFTWARE: Patientin Release #1.0, Version #1.25  
 ; CURRENT APPLICATION DATA:  
 ; APPLICATION NUMBER: US/09/746,919  
 ; FILING DATE:  
 ; CLASIFICATION:  
 ; PRIORITY APPLICATION DATA:  
 ; APPLICATION NUMBER: 09/045,467  
 ; FILING DATE:  
 ; PRIORITY APPLICATION DATA:  
 ; APPLICATION NUMBER: US 08/438,753  
 ; FILING DATE: 10-MAY-1995  
 ; PRIORITY APPLICATION DATA:  
 ; APPLICATION NUMBER: US 08/139,891  
 ; FILING DATE:  
 ; PRIORITY APPLICATION DATA:  
 ; APPLICATION NUMBER: US 08/139,891

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	DB ID	Description
1	907	100.0	172	9 US-09-746-919-2	Sequence 2, Appli
2	907	100.0	172	10 US-09-710-006C-2	Sequence 2, Appli
3	907	100.0	172	14 US-10-029-880-2	Sequence 2, Appli
4	907	100.0	172	15 US-10-346-259-2	Sequence 2, Appli
5	907	100.0	172	15 US-10-346-569-3	Sequence 3, Appli
6	907	100.0	172	15 US-10-694-247-2	Sequence 2, Appli
7	907	100.0	172	16 US-10-683-244-1	Sequence 1, Appli
8	907	100.0	172	16 US-10-719-172-2	Sequence 2, Appli
9	907	100.0	172	16 US-10-825-68-2	Sequence 2, Appli
10	907	100.0	172	17 US-10-884-41-2	Sequence 2, Appli
11	907	100.0	172	17 US-10-825-182-2	Sequence 2, Appli

FILING DATE: 19-OCT-1993  
 / PRIOR APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/8447,741  
 / FILING DATE: 09-MAR-1992  
 / PRIOR APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/318,050  
 / FILING DATE: 02-MAR-1989  
 / PRIOR APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/969,890  
 / FILING DATE: 30-OCT-1992  
 / ATTORNEY/AGENT INFORMATION:  
 NAME: Dehlinger, Peter J.  
 REGISTRATION NUMBER: 28,006  
 / TELECOMMUNICATION INFORMATION  
 / REFERENCE/DOCKET NUMBER: 5600-0001-36  
 / TELEPHONE: 650-324-0880  
 / TELEFAX: 650-324-0960  
 / INFORMATION FOR SEQ ID NO: 2:  
 / SEQUENCE CHARACTERISTICS:  
 / LENGTH: 172 amino acids  
 / TYPE: amino acid  
 / TOPOLOGY: linear  
 / MOLECULE TYPE: protein  
 / ORIGINAL SOURCE:  
 / INDIVIDUAL ISOLATE: amino acid sequence of a mature OvIFNtau protein  
 US-03-746-919-2

Query Match 100.0%; Score 907; DB 9; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMIDARENKLIDRMNRLSPHSCLQRDKDFGLPQEMYEGDQLQDKQAPVLYEM 60  
 Db 1 CYLSRKLMIDARENKLIDRMNRLSPHSCLQRDKDFGLPQEMYEGDQLQDKQAPVLYEM 60

Qy 61 LQQSFLNFYTHEHSSAAWDTTLEQLTGLOCQNDLDTCRQNGBEDSELGNMDPIVTV 120  
 Db 61 LQQSFLNFYTHEHSSAAWDTTLEQLTGLOCQNDLDTCRQNGBEDSELGNMDPIVTV 120

Qy 121 KKYFGQIYDYLQEKGSDCWEIVRVMEMRALTVSTTLQRKLTKGMDLNSP 172  
 Db 121 KKYFGQIYDYLQEKGSDCWEIVRVMEMRALTVSTTLQRKLTKGMDLNSP 172

RESULT 2  
 US-09-910-406C-2  
 / Sequence 2, Application US/09910406C  
 / PUBLICATION NO. US2003049277A1  
 / PUBLICAL INFORMATION:  
 / APPLICANT: Liu, Chih-Ping  
 / APPLICANT: Sokawa, Yoshihiro  
 / TITLE OF INVENTION: Composition for Treatment of and Method  
 / TITLE OF INVENTION: Of Monitoring Hepatitis C Virus Using Interferon-tau  
 / FILE REFERENCE: 5600-0004.30  
 / CURRENT APPLICATION NUMBER: US/09/910,406C  
 / CURRENT FILING DATE: 2002-07-02  
 / NUMBER OF SEQ ID NOS: 4  
 / SOFTWARE: FastSEQ for Windows Version 4.0  
 / PRIOR APPLICATION NUMBER: JP 317160  
 / PRIOR FILING DATE: 2000-10-17  
 / PRIOR APPLICATION NUMBER: US 60/219,128  
 / PRIOR FILING DATE: 2000-07-19  
 / SEQ ID NO 2  
 / LENGTH: 172  
 / TYPE: PRT  
 / ORGANISM: Ovis Aries  
 US-09-910-406C-2

Query Match 100.0%; Score 907; DB 10; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMIDARENKLIDRMNRLSPHSCLQRDKDFGLPQEMYEGDQLQDKQAPVLYEM 60  
 Db 1 CYLSRKLMIDARENKLIDRMNRLSPHSCLQRDKDFGLPQEMYEGDQLQDKQAPVLYEM 60

Qy 61 LQQSFLNFYTHEHSSAAWDTTLEQLTGLOCQNDLDTCRQNGBEDSELGNMDPIVTV 120  
 Db 61 LQQSFLNFYTHEHSSAAWDTTLEQLTGLOCQNDLDTCRQNGBEDSELGNMDPIVTV 120

Qy 121 KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTYSTTLQRKLTGMGDLNSP 172  
Db 121 KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTYSTTLQRKLTGMGDLNSP 172

RESULT 4  
US-10-346-269-2  
Sequence 2, Application US/10346269  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Oral Administration of Interferon-tau  
; FILE REFERENCE: 55600.8009.US00  
; CURRENT APPLICATION NUMBER: US/10/346,269  
; CURRENT FILING DATE: 2003-01-16  
; PRIOR APPLICATION NUMBER: US 60/349,658  
; PRIOR FILING DATE: 2002-01-16  
; NUMBER OF SEQ ID NOS: 3  
; SOFTWARE: FastSEQ For Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial Sequence  
; FEATURE:  
; OTHER INFORMATION: amino acid encoded by SEQ ID NO:1

US-10-346-269-2

Query Match Score 907; DB 15; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-99;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLKDRMNRLSPHSCLQDRKDGLPQEMVEGDOLQKDOAPPVLYEM 60  
Db 1 CYLSRKMLDARENKLKDRMNRLSPHSCLQDRKDGLPQEMVEGDOLQKDOAPPVLYEM 60

Qy 61 LOQSFNLFYTEHSSAAWDTTLEQLCQQLDHLDTCRGYMGEDSELGNMDPIVTY 120  
Db 61 LOQSFNLFYTEHSSAAWDTTLEQLCQQLDHLDTCRGYMGEDSELGNMDPIVTY 120

Qy 121 KKYFOGIYDYLQEKGYSDCANEIVRVMRMALTYSTTLQRKLTGMGDLNSP 172  
Db 121 KKYFOGIYDYLQEKGYSDCANEIVRVMRMALTYSTTLQRKLTGMGDLNSP 172

RESULT 5  
US-10-346-269-3  
; Sequence 3, Application US/10346269  
; Publication No. US20030219405A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Oral Administration of Interferon-tau  
; FILE REFERENCE: 55600.8009.US00  
; CURRENT APPLICATION NUMBER: US/10/346,269  
; CURRENT FILING DATE: 2003-01-16  
; PRIOR APPLICATION NUMBER: US 60/349,658  
; PRIOR FILING DATE: 2002-01-16  
; NUMBER OF SEQ ID NOS: 3  
; SOFTWARE: FastSEQ For Windows Version 4.0  
; SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries

US-10-346-269-3

Query Match Score 907; DB 15; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLKDRMNRLSPHSCLQDRKDGLPQEMVEGDOLQKDOAPPVLYEM 60  
Db 1 CYLSRKMLDARENKLKDRMNRLSPHSCLQDRKDGLPQEMVEGDOLQKDOAPPVLYEM 60

Qy 61 LOQSFNLFYTEHSSAAWDTTLEQLCQQLDHLDTCRGYMGEESELGNMDPIVTY 120  
Db 61 LOQSFNLFYTEHSSAAWDTTLEQLCQQLDHLDTCRGYMGEESELGNMDPIVTY 120

Qy 121 KKYFOGIYDYLQEKGYSDCANEIVRVMRMALTYSTTLQRKLTGMGDLNSP 172

Db 121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172

RESULT 7

; Sequence 1, Application US/10683214  
; PUBLIC INFORMATION:  
; APPLICANT: Manning, Mark C.  
; TITLE OF INVENTION: Oral formulations for proteins and polypeptides  
; FILE REFERENCE: 5560-8011.US00  
; CURRENT APPLICATION NUMBER: US/10/683,214  
; PRIORITY FILING DATE: 2003-10-07,  
; PRIOR APPLICATION NUMBER: US 60/417,292  
; PRIOR FILING DATE: 2002-10-09  
; NUMBER OF SEQ ID NOS: 18  
; SOFTWARE: Patentin version 3.1  
; SEQ ID NO 1  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries

US-10-683-214-1

Query Match Score 907; DB 16; Length 172;  
Best Local Similarity 100 %; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60  
1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60

Db 61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120  
61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120

Db 121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172  
121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172

RESULT 8

; Sequence 2, Application US/10719472  
; Publication No. US2004191217A1  
; PUBLIC INFORMATION:  
; APPLICANT: Sokawa, Yoshihiro  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Method of treatment using interferon-tau  
; FILE REFERENCE: 5560-8013.US00  
; CURRENT APPLICATION NUMBER: US/10/719,472  
; PRIORITY FILING DATE: 2003-11-21  
; PRIOR APPLICATION NUMBER: US/10/698,927  
; PRIOR FILING DATE: 2003-10-31  
; PRIOR APPLICATION NUMBER: US 09/910,406  
; PRIOR FILING DATE: 2001-07-19  
; PRIOR APPLICATION NUMBER: US 60/219,128  
; PRIOR FILING DATE: 2000-07-19  
; PRIOR APPLICATION NUMBER: US 10/346,269  
; PRIOR FILING DATE: 2003-01-16  
; PRIOR APPLICATION NUMBER: US 60/349,658  
; PRIOR FILING DATE: 2002-01-16  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: Patentin version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries

US-10-719-472-2

Query Match Score 907; DB 16; Length 172;  
Best Local Similarity 100 %; Pred. No. 9.4e-89;

Db 1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60  
1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60

Db 61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120  
61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120

Db 121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172  
121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172

RESULT 9

US-10-825-068-2

; Sequence 2, Application US/10825068  
; Publication No. US2004024756A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; INVENTOR: Villarete, Lorelie H.  
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
; FILE REFERENCE: 5560-8014.US03  
; CURRENT APPLICATION NUMBER: US/10/825,068  
; PRIORITY FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: Patentin version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries

US-10-825-068-2

Query Match Score 907; DB 16; Length 172;  
Best Local Similarity 100 %; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60  
1 CYLSRKLMIDARENKLDRMNRLSPHSCLQRKDQFGLPQEVMEGDQLQDKDQAPVLYEM 60

Db 61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120  
61 LQQSENLFTYEHSSAAWDTLLEOLCTGQQLDHLTDRCGVNGEEDSSELGNNDPIVTY 120

Db 121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172  
121 KKYFGIYDYLQEKYSDCAWIEVMMRALTVSTTLQRRLTKNGGDLNSP 172

RESULT 10

US-10-884-741-2

; Sequence 2, Application US/10884741  
; Publication No. US20050084478A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; INVENTOR: Villarete, Lorelie H.  
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
; FILE REFERENCE: 5560-8014.US00  
; CURRENT APPLICATION NUMBER: US/10/884,741  
; PRIORITY FILING DATE: 2004-07-02  
; PRIOR APPLICATION NUMBER: US/10/824,710  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: Patentin version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT

US-10-719-472-2

Query Match Score 907; DB 16; Length 172;  
Best Local Similarity 100 %; Pred. No. 9.4e-89;

ORGANISM: Ovis aries  
US-10-884-741-2

Query Match 100.0%; Score 907; DB 17; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60  
Db 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60

Qy 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120  
Db 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120

Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172  
Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172

RESULT 11  
US-10-825-382-2  
Sequence 2, Application US/10825382  
Publication No. US20050118137A1  
GENERAL INFORMATION:  
APPLICANT: Liu, Chih-Ping  
TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
FILE REFERENCE: 55600-801.US01  
CURRENT APPLICATION NUMBER: US/10/825,382  
CURRENT FILING DATE: 2004-04-14  
PRIOR APPLICATION NUMBER: US 60/552,279  
PRIOR FILING DATE: 2004-03-10  
NUMBER OF SEQ ID NOS: 4  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 2  
LENGTH: 172  
TYPE: PRT  
ORGANISM: Ovis aries  
US-10-825-382-2

Query Match 100.0%; Score 907; DB 17; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60  
Db 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60

Qy 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120  
Db 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120

Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172  
Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172

RESULT 12  
US-10-825-457-2  
Sequence 2, Application US/10825457  
Publication No. US20050118138A1  
GENERAL INFORMATION:  
APPLICANT: Liu, Chih-Ping  
TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
FILE REFERENCE: 55600-801.US02  
CURRENT APPLICATION NUMBER: US/10/825,457  
CURRENT FILING DATE: 2004-04-14  
PRIOR APPLICATION NUMBER: US 60/552,279  
NUMBER OF SEQ ID NOS: 4  
SOFTWARE: PatentIn version 3.1

RESULT 13  
US-10-824-710-2  
Sequence 2, Application US/10824710  
Publication No. US20050142109A1  
GENERAL INFORMATION:  
APPLICANT: Villaret, Lorelie H.  
TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
FILE REFERENCE: 55600-801.US00  
CURRENT APPLICATION NUMBER: US/10/824,710  
CURRENT FILING DATE: 2004-04-14  
PRIOR APPLICATION NUMBER: US 60/552,279  
PRIOR FILING DATE: 2004-03-10  
NUMBER OF SEQ ID NOS: 4  
SOFTWARE: PatentIn version 3.1  
SEQ ID NO 2  
LENGTH: 172  
TYPE: PRT  
ORGANISM: Ovis aries  
US-10-824-710-2

Query Match 100.0%; Score 907; DB 18; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60  
Db 1 CYLSRKLMQLDARENKLKLDMMRLSPHSCLQRKDGLPQEMVEGDLQKQDAFPVYEM 60

Qy 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120  
Db 61 LQSQSNLFYTHESSAAWDTTLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDP1VTY 120

Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172  
Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLLTRGMGDLNNSP 172

RESULT 14  
US-10-991-653-2  
Sequence 2, Application US/10991653  
Publication No. US20050147588A1  
GENERAL INFORMATION:  
APPLICANT: Lopez, Henry W.  
TITLE OF INVENTION: Methods for Treatment of Obesity and for Promotion of Weight Loss  
FILE REFERENCE: 55600-801.US01  
CURRENT APPLICATION NUMBER: US/10/991,653  
CURRENT FILING DATE: 2004-11-17  
PRIOR APPLICATION NUMBER: US 60/523,077

PRIOR FILING DATE: 2003-11-17  
 PRIOR APPLICATION NUMBER: US 60/532, 851  
 PRIOR FILING DATE: 2003-12-24  
 NUMBER OF SEQ ID NOS: 4  
 SOFTWARE: PatentIn version 3.1  
 SEQ ID NO: 2  
 LENGTH: 172  
 TYPE: PRT  
 ORGANISM: Ovis Aries  
 US-10-991-653-2

TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0760  
 INFORMATION FOR SEQ ID NO: 2;  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: Protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature  
 OvinTau protein  
 SEQ ID NO: 2:

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Query Match          100.0%; Score 907; DB 18; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy   1 CYLSRKLMILDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVQEGDQLQDKDQAPVLYEM 60
Db    1 CYLSRKLMILDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVQEGDQLQDKDQAPVLYEM 60
Qy   61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120
Db    61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120
Qy   121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172
Db    121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172
RESULT 15
US-10-794-495-2
; Sequence 2, Application US/10794495
; GENERAL INFORMATION.
; APPLICANT: Johnson, Howard M.
; PONTEER: Carol H.
; TITLE OF INVENTION: Interferon Tau Compositions and
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Ave., Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/10/794, 495
; FILING DATE: 03-Mar-2004
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/09/045, 467
; FILING DATE: 20-Mar-1998
; APPLICATION NUMBER: US 08/455, 021
; FILING DATE: 31-MAY-1995
; APPLICATION NUMBER: US 08/438, 753
; FILING DATE: 10-MAY-1995
; APPLICATION NUMBER: US 08/139, 891
; FILING DATE: 19-OCT-1993
; APPLICATION NUMBER: US 07/847, 741
; FILING DATE: 09-MAR-1992
; APPLICATION NUMBER: US 07/318, 050
; FILING DATE: 02-MAR-1989
; APPLICATION NUMBER: US 07/969, 890
; FILING DATE: 30-OCT-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Dehlinger, Peter J.
; REGISTRATION NUMBER: 28, 006
; REFERENCE/DOCKET NUMBER: 5600-0001-36
```

SEQUENCE DESCRIPTION: SEQ ID NO: 2:  
 US-10-794-495-2

Query Match 100.0%; Score 907; DB 18; Length 172;
 Best Local Similarity 100.0%; Pred. No. 9.4e-89;
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKLMILDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVQEGDQLQDKDQAPVLYEM 60
 Db 1 CYLSRKLMILDARENKLIDMRNRLSPHSCLQRDKDFGLPQEMVQEGDQLQDKDQAPVLYEM 60

Qy 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120
 Db 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120

Qy 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120
 Db 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120

Qy 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120
 Db 61 LQQSFLNLFYTHSSAAWDTLLEQLCGTLQOQLDHLDTCRQVMGEEDSELGNMDPIVTY 120

Qy 121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172
 Db 121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172

Qy 121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172
 Db 121 KKYFGQIYDYLQEQGYSDCAWEVIRVEMMRALTVSTLTKRQLTKNGGDLNSP 172

Search completed: October 28, 2005, 15:05:40
 Job time : 114 secs

GenCore version 5.1.6  
 Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:48:06 ; Search time 121 Seconds  
 (without alignments)  
 549.775 Million cell updates/sec

Title: US-10-719-472-3  
 Perfect score: 907  
 Sequence: 1 CYLSERLMLDARENKLKLLDR.....TVSTTLQKRLLTKMGGDINSP 172

Scoring table: BLOSUM62  
 Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
 Maximum Match 0%  
 Listing First 45 summaries

Database : A\_Geneseq\_16Dec04:  
 1: GeneseqP1980s:  
 2: GeneseqP1990s:  
 3: GeneseqP2000s:  
 4: GeneseqP2001s:  
 5: GeneseqP2002:  
 6: GeneseqP2003as:  
 7: GeneseqP2003bs:  
 8: GeneseqP2004s:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	907	100.0	172	5 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
2	907	100.0	172	8 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
3	907	100.0	172	8 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
4	901	99.3	195	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
5	901	99.3	195	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
6	899	99.1	172	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
7	899	99.1	172	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
8	899	99.1	172	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
9	899	99.1	172	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
10	899	99.1	172	5 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
11	899	99.1	172	7 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
12	899	99.1	172	8 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
13	899	99.1	172	8 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
14	899	99.1	172	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
15	898	99.0	195	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
16	897	98.9	172	5 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
17	897	98.9	172	8 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
18	896	98.8	195	2 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
19	894	98.6	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
20	892	98.3	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
21	892	98.3	172	5 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
22	890	98.1	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
23	889	98.0	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
24	888	97.9	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine
25	888	97.9	172	4 ABB07589	Abb07589 Recombina Adm79178 Mature ov Adsl13614 Recombina Aar24941 Sequence Aar24945 Sequence Aar54768 Sheep int Aar99397 Ovine tau Aaw31698 Mature ov Aaw44110 Mature ov Abb07588 Ovine int Adl17857 Mature ov Adm79177 Mature ov Adsl13613 Sheep int Aar04440 Ovine tro Aar24944 Sequence Aar09294 Ovine tro Adm79195 Interfero Aar24942 Sequence Aab31466 An ovine Aab31457 Amino aci Aao21461 Ovine int Aab31462 An ovine Aab31467 An ovine Aab31468 An ovine Aab31464 An ovine

## ALIGNMENTS

RESULT 1		RESULT 2		RESULT 3	
ID	XX	ID	XX	ID	XX
ABB07589	XX	ABB07589	XX	ABB07589	XX
AC	XX	AC	XX	AC	XX
DT	XX	DT	XX	DE	XX
XX	XX	XX	XX	DE	XX
DE	XX	DE	XX	DE	XX
XX	XX	XX	XX	DE	XX
DE	XX	DE	XX	DE	XX
XX	XX	XX	XX	DE	XX
PD	XX	PD	XX	PD	XX
XX	XX	XX	XX	PD	XX
PF	XX	PF	XX	PF	XX
XX	XX	XX	XX	PF	XX
PR	XX	PR	XX	PR	XX
PR	XX	PR	XX	PR	XX
(PEPG-) PEPGEN CORP.	XX	(PEPG-) PEPGEN CORP.	XX	Sokawa Y., Liu C.	XX
PI	XX	PI	XX	DR	XX
XX	XX	XX	XX	DR	XX
DR	XX	DR	XX	DR	XX
N-PSDB; ABA94937.	XX	N-PSDB; ABA94937.	XX	WPI; 2002-179784/23.	XX
PS	XX	PS	XX	Example 1; Page 33; 33pp; English.	XX
CC	CC	CC	CC	The invention provides an oral-delivery composition for use in treating hepatitis C virus (HCV) in a HCV infected patient. The composition comprises ovine interferon-tau (ovIFN-tau), in a dosage effective to stimulate bloodstream levels of 2',5'-oligoadenylate synthetase (OAS). The OAS which degrades viral mRNA. A method is also provided for monitoring the treatment of HCV by oral administration of ovIFN-tau, by measuring the blood levels of OAS prior to and after such oral administration, and if necessary, adjusting the dose of IFN-tau until a measurable increase in blood OAS level, relative to the level observed prior to administration. The composition is useful for treating hepatitis C caused by HCV and the method is useful for monitoring treatment	CC

CC of Hcv by oral administration of ovIFN-tau. The present sequence  
 CC represents a recombinant ovine interferon-tau protein  
 XX

SQ Sequence 172 AA;

Query Match	100.0%	Score 907; DB 5; Length 172;
Best Local Similarity	100.0%	Pred. No. 6.6e-92; Mismatches 0; Indels 0; Gaps 0;
Matches 172; Conservative 0; Sequence 172 AA;		
<b>Qy</b>	1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60	Score 907; DB 8; Length 172;
<b>Ds</b>	1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60	Score 100.0%; Best Local Similarity 100.0%; Pred. No. 6.6e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0; Sequence 172 AA;
<b>Db</b>	61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120	QY 1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60
<b>Qy</b>	61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120	Db 1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60
<b>Ds</b>	61 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	QY 61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120
<b>Qy</b>	121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	Db 61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120
<b>Db</b>	121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	QY 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172
		Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172

## RESULT 2

ADM79178

ID ADM79178 standard; protein; 172 AA.

XX

AC ADM79178;

XX DT 15-JUL-2004 (first entry)

XX DE Mature ovine interferon tau variant protein SEQ ID NO:2.

XX KW oral administration; interferon; IFN; ovine; mature interferon tau; KW variant.

XX OS Ovis aries.

OS Synthetic.

XX PN WO2004032163-A2.

XX PD 22-APR-2004.

XX PF 08-OCT-2003; 2003WO-US031999.

XX PR 09-OCT-2002; 2002US-0417292P.

XX PA (PEPG-) PEPGEN CORP.

XX PI Manning MC, Nayar R;

XX DR WPI: 2004-340/99/31.

XX PT A composition for oral administration of an interferon (IFN) comprises an

PT IFN and a species that stabilizes the IFN in an active form by

PT interaction between the interferon and the species.

XX PS Example; SEQ ID NO 2; 5Opp; English.

XX PR

XX PA

XX PI

XX PI

XX DR

XX PR

XX PA

CC proteins and polypeptides. The present sequence represents a mature ovine  
 CC interferon tau variant amino acid sequence where positions 5 and 6 have  
 CC been modified, which is used in an example from the present invention.  
 XX

Query Match	100.0%	Score 907; DB 5; Length 172;
Best Local Similarity	100.0%	Pred. No. 6.6e-92; Mismatches 0; Indels 0; Gaps 0;
Matches 172; Conservative 0; Sequence 172 AA;		
<b>Qy</b>	1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60	Score 907; DB 8; Length 172;
<b>Ds</b>	1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60	Score 100.0%; Best Local Similarity 100.0%; Pred. No. 6.6e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0; Sequence 172 AA;
<b>Db</b>	61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120	QY 1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60
<b>Qy</b>	61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120	Db 1 CYLSERMLDARENKILDRMNRNLSPHSCLQDRKFGLPQEIVEDQLQKDQAFVLYEM 60
<b>Ds</b>	61 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	QY 61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120
<b>Qy</b>	121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	Db 61 LQQSFNLFTYHSSAAWDTTLEQQLCTGLOQLDHDLTCRQVMGMBEDSEIGNMNDPITYV 120
<b>Db</b>	121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172	QY 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172
		Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKGDDLNSP 172

## RESULT 3

ADM313614

ID ADS13614 standard; protein; 172 AA.

XX	ADS13614;
AC	ADS13614;
XX	DT 16-DEC-2004 (first entry)
XX	DE Recombinant sheep interferon tau seqid 3.
XX	KW immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic; muscular; antiinflammatory; antirheumatic; antiarthritic; antiasthmatic; dermatological; vaccine; interferon tau; 2',5'-oligoadenylate synthetase; OAS; autoimmune condition; cancer; viral infection; multiple sclerosis; hepatitis C infection; diabetes mellitus; systemic lupus erythematosus; amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis; asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.
XX	OS Ovis aries.
OS	OS Synthetic.
XX	FH Key
XX	Misc-difference 5 /note= "Wild type Arg substituted by Glu"
XX	Misc-difference 6 /note= "Wild type Lys substituted by Arg"
XX	PN US2004191217-A1.
XX	PR 30-SEP-2004.
XX	PT 21-NOV-2003; 2003US-00719472.
XX	PR 19-JUL-2000; 2000US-02191128P.
PR	19-JUL-2001; 2001US-00910406.
PR	16-JAN-2002; 2002US-03496589.
PR	16-JAN-2003; 2003US-0046269.
PR	31-OCT-2003; 2003US-00698927.
XX	(SOKA/) SOKAWA Y.
PA	(LIUC/) LIU C.
XX	Sokawa Y, Liu C;
PI	DR WPI: 2004-698654/68.
XX	N-PSDB; ADS13615.
PR	Treating a condition in a subject, e.g. autoimmune condition, cancer or viral infection, comprises orally administering interferon-tau to the intestinal tract to increase the blood 2',5'-oligoadenylate synthetase

PT	level.	XX	New type I interferon variants with added N-terminal di:peptide - include PT expression cassettes providing high yield in yeast, esp. trophoblast
PS	Claim 2; SEQ ID NO 3; 38pp; English.	XX	PT disclosure. with e.g. anti-luteolytic activity.
CC	The invention describes a method of treating a condition in a human subject responsive to interferon tau therapy comprises orally administering interferon-tau to the intestinal tract of the subject to produce an initial measurable increase in the subject's blood 2'-5'-oligoadenylate synthetase (OAS) level, relative to the blood OAS level, in the subject in the absence of interferon-tau administration. The method is useful for treating an autoimmune condition, cancer, or a viral infection. The method is particularly useful for treating multiple sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.	XX	CC Disclosure; Fig 1: 53pp; French.
CC	This is the amino acid sequence of recombinant ovine interferon-tau in which the residues at positions 5 and 6 have been altered to Glu and Arg relative to the wild type Arg and Lys.	XX	CC The DNA sequence encoding the precursor of ovine trophoblastin was disclosed in PCT WO 89/08706 (see AAR24941). AAR24942-R24945 are isoforms of trophoblastin. They have anti-luteolytic activity and are used to improve survival of transplanted embryos; as a reagent for detecting embryo viability of embryos at an early stage of its development; and to improve the fertility of livestock. (Updated on 25-MAR-2003 to correct PCT field.)
CC	Sequence 195 AA;	XX	CC sequence 195 AA;
SQ	Query Match 99.3%; Score 901; DB 2; Length 195; Best Local Similarity 98.8%; Pred. No. 3.6e-91; Mismatches 0; Indels 0; Gaps 0;	XX	CC sequence 195 AA;
Qy	1 CYLSERLMLDARENKLILDMMNRLSPHSICLQDRKDGLPQEMVEGQDQLQKQAFPVLYEM 60	Db	1 CYLSERLMLDARENKLILDMMNRLSPHSICLQDRKDGLPQEMVEGQDQLQKQAFPVLYEM 63
Qy	1 CYLSERLMLDARENKLILDMMNRLSPHSICLQDRKDGLPQEMVEGQDQLQKQAFPVLYEM 60	Db	1 CYLSERLMLDARENKLILDMMNRLSPHSICLQDRKDGLPQEMVEGQDQLQKQAFPVLYEM 60
Db	61 LOQSFNLFYTEHSSAAWDTTLEQLCTGQDQQLDHTCRGQVMGEBDSEIGNMDFIVTV 120	Db	61 LOQSFNLFYTEHSSAAWDTTLEQLCTGQDQQLDHTCRGQVMGEBDSEIGNMDFIVTV 143
Qy	61 LOQSFNLFYTEHSSAAWDTTLEQLCTGQDQQLDHTCRGQVMGEBDSEIGNMDFIVTV 120	Db	61 LOQSFNLFYTEHSSAAWDTTLEQLCTGQDQQLDHTCRGQVMGEBDSEIGNMDFIVTV 120
Db	121 KKYFQGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKNGGDLNSP 172	Db	121 KKYFQGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKNGGDLNSP 172
Qy	121 KKYFQGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKNGGDLNSP 172	Db	121 KKYFQGIYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKNGGDLNSP 172
RESUL T 4	AAR24941 standard; protein; 195 AA.	XX	RESUL T 5
ID	AAR24941	XX	AAR24945 standard; protein; 195 AA.
XX		XX	ID AAR24945
AC	AAR24941;	XX	AC AAR24945;
XX		XX	AC
DT	25-MAR-2003 (revised)	XX	XX
DT	03-JAN-1992 (first entry)	XX	25-MAR-2003 (revised)
DE	Sequence of ovine trophoblastin.	XX	DT 03-JAN-1992 (First entry)
KW	Antiviral; antiinflammatory; antitumour; immunomodulator; immunogen; trophoblastin; antiileolytic agent.	XX	DE Sequence of ovine trophoblastin variant x.d.
KW	Ammotragus lervia.	XX	XX
XX		XX	DE Sequence of ovine trophoblastin variant x.d.
OS	Ammotragus lervia.	XX	XX
XX		XX	OS Ammotragus lervia.
PH	Key Location/Qualifiers	XX	OS Ammotragus lervia.
FT	Peptide 1; 23	XX	PH WO9209691-A1.
FT	/label= signal	XX	XX
XX	W09209691-A1.	XX	PD 11-JUN-1992.
XX		XX	PF 29-NOV-1991;
PD	11-JUN-1992.	XX	XX
XX		XX	PR 29-NOV-1990;
PP	29-NOV-1991;	XX	PR 29-NOV-1990;
XX	91WO-FR000953.	XX	XX
PR	29-NOV-1990;	XX	PA (INRG ) INRA INST NAT RECH AGRONOMIQUE.
PR	90FR-00014945.	XX	XX
XX	90FR-00014946.	XX	PR Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;
PA	(INRG ) INRA INST NAT RECH AGRONOMIQUE.	XX	XX
XX		XX	XX
PI	Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;	XX	XX
PI	Chaouat G;	XX	XX
XX		XX	DR WPI; 1992-217070/26.
DR	WPI; 1992-217070/26.	XX	XX

PS Claim 7; Page 30; 53pp; French.

XX The DNA sequence encoding the precursor of ovine trophoblastin was  
 CC disclosed in PCR WO 89/05706 (see AAR21941). AAR21942-R24945 are isoforms  
 CC of trophoblastin. They have anti-luteolytic activity and are used to  
 CC improve survival of transplanted embryos, as a reagent for detecting  
 CC viability of embryos at an early stage of its development, and to improve  
 CC the fertility of livestock. (Updated on 25-MAR-2003 to correct PN field.)

SQ Sequence 195 AA;

Query Match 99.3%; Score 901; DB 2; Length 195;  
Best Local Similarity 98.8%; Pred. No. 3.6e-91;  
Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
Db 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60Qy 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120  
Db 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120

SQ Sequence 195 AA;

Query Match 99.3%; Score 901; DB 2; Length 195;  
Best Local Similarity 98.8%; Pred. No. 3.6e-91;  
Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
Db 24 CYLSQMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 83Qy 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120  
Db 84 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 143Qy 121 KKYFQGTYDYLQEKYSDCAWEVIRVEMMRLATVSTTLQRKLTQGGDLNSP 172  
Db 144 KKYFQGTYDYLQEKYSDCAWEVIRVEMMRLATVSTTLQRKLTQGGDLNSP 195

SQ Sequence 195 AA;

Query Match 99.3%; Score 901; DB 2; Length 195;  
Best Local Similarity 98.8%; Pred. No. 3.6e-91;  
Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
Db 24 CYLSQMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 83Qy 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120  
Db 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120

SQ Sequence 195 AA;

Query Match 99.3%; Score 901; DB 2; Length 195;  
Best Local Similarity 98.8%; Pred. No. 3.6e-91;  
Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
Db 24 CYLSQMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 83Qy 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120  
Db 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120

SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 2; Length 172;

PS Claim 3; Page 90; 126pp; English.

XX This sheep IFN-tau protein is expressed in yeast, insect cells or E. coli

XX using expression vector phage lambda-gt1. The protein is useful for

XX inhibiting tumor cell growth, for inhibiting viral replication in cells

XX and enhancing fertility in female mammals. (Updated on 25-MAR-2003 to

XX correct PN field.)

PS Sequence 172 AA;

Query Match 99.1%; Score 899; DB 2; Length 172;

PS Claim 5; Page 48; 65pp; English.

XX Ovine and human tau interferon may be used in medicaments to treat

CC autoimmune disorders (e.g. multiple sclerosis or rheumatoid arthritis), a

CC proliferative disorder (e.g. cancer) or a viral disease (e.g. hepatitis

CC B). It can also be used to enhance fertility in female mammals. The

CC medicament is given orally or by injection. Ovine and human tau

CC interferon sequences are given in AAT41504 to AAT41506

SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 2; Length 172;

PS Claim 6; Page 48; 65pp; English.

XX Best Local Similarity 98.8%; Pred. No. 5.1e-91;

CC Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
Db 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDQAFPVLYEM 60Qy 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120  
Db 61 LQQSFLNLFYTEHSSAAWDTLLEOLCTGLOQLDTRGQNGEEDSELGNMDPITYV 120

Qy 121 KKYFQGIYDYLQEKGYSDCAWEIVRVEMMRALTVSTTLQKRLTKMGGDINSP 172  
 Db 121 KKYFQGIYDYLQEKGYSDCAWEIVRVEMMRALTVSTTLQKRLTKMGGDINSP 172

## RESULT 8

AAW31698  
 ID AAW31698 standard; protein; 172 AA.  
 XX  
 AC AAW31698;  
 XX DT 14-APR-1998 (first entry)  
 XX DE Mature ovine interferon-tau (OvIFNTau) protein.  
 XX KW Interferon-tau; ovine; human; auto immune disease; treatment; toxicity;  
 KW KW tau; multiple sclerosis; diabetes mellitus; asthma; allergy; cancer.  
 XX OS Ovis aries.  
 XX PN WO9733607-A1.  
 XX PD 18-SEP-1997.  
 XX PP 12-MAR-1997; 97WO-US003794.  
 XX PR 15-MAR-1996; 96US-00616904.  
 XX PA (UYFL ) UNIV FLORIDA.  
 XX PI Soos JM, Schiffenbauer J, Johnson HM;  
 XX DR 1997-470642/43.  
 XX DR N-PSDB; AAV02288.

XX PT Oral administration of interferon-tau for treatment of auto-immune  
 PT disease - avoids toxicity of interferon alpha and generates fewer  
 PT specific antibodies than injection.  
 XX PS Claim 5; Page 31; 48pp; English.  
 XX This is a mature ovine interferon-tau (OvIFNTau) protein. The ovine and  
 CC the human interferon-tau (IFN tau) can be used in the treatment of  
 CC mammalian diseases responsive to IFN tau. The new feature in the  
 CC treatment is that IFN tau is administered orally. The method is used to  
 CC treat immune, particularly autoimmune disease, specifically multiple  
 CC sclerosis (a preferred application, reducing both severity and frequency  
 CC of relapses), type I diabetes mellitus, lupus erythematosus, amyotrophic  
 CC lateral sclerosis, Crohn's disease, rheumatoid arthritis, stomatitis,  
 CC asthma, allergies and psoriasis, particularly in humans or dogs. IFN tau  
 CC is also useful for treating cancer (e.g. hairy cell leukaemia, Kaposi's  
 CC sarcoma and multiple myeloma), cell proliferation and viral diseases  
 CC (hepatitis, human immunodeficiency virus etc., including prevention of  
 CC internal transmission). It is also used for increasing fertility in  
 CC female mammals (increasing life time of the corpus luteum). Oral  
 CC administration is as effective as injection but is more convenient and  
 CC generates a lower level of anti-IFN tau antibodies. Use of IFN tau avoids  
 CC the toxicity associated with use of IFN alpha  
 XX SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 2; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 5.1e-91; Indels 0; Gaps 0;

Matches 170; Conservative 1; Mismatches 1; Gaps 0;

Sequence 172 AA;

Qy 121 KKIFYQGIYDYLQEKGYSDCAWEIVRVEMMRALTVSTTLQKRLTKMGGDINSP 172  
 Db 121 KKIFYQGIYDYLQEKGYSDCAWEIVRVEMMRALTVSTTLQKRLTKMGGDINSP 172

RESULT 9

AAW44110  
 ID AAW44110 standard; protein; 172 AA.  
 XX AC AAW44110;  
 XX DT 16-JUN-1998 (first entry)  
 XX DE Mature ovine interferon tau.  
 XX KW Hybrid; fusion; interferon-tau; inhibit; tumour; viral growth; IFNTc;  
 KW autoimmune disease; immune response.  
 XX OS Ovis aries.  
 XX PN WO9739127-A1.  
 XX PD 23-OCT-1997.  
 XX PP 11-APR-1997; 97WO-US006114.  
 XX PR 12-APP-1996; 96US-00631328.  
 XX PA (UYFL ) UNIV FLORIDA.  
 XX PI Johnson HM, Subramanian PS, Pontzer CH;  
 XX DR 1997-526433/48.  
 XX DR N-PSDB; AAV02178.

XX Disclosure; Page 83; 147pp; English.

XX The present sequence represents mature ovine interferon tau from the  
 CC present invention. The present invention describes a novel chimeric  
 CC nucleic acid which comprises: (i) a 5'-segment encoding the N-terminal  
 CC amino acid (aa) sequence of an interferon tau (IFNT) polypeptide; and  
 CC (ii) a 3'-sequence encoding the C-terminal aa sequence of a non-tau type  
 CC I interferon with the two segments spliced in a region comprising part  
 CC of the mature interferon between residues 8 and 37. Hybrid interferon  
 CC fusion polypeptides are used to inhibit tumour growth (e.g. of steroid-  
 CC sensitive tumours) and viral replication (e.g. of human immunodeficiency  
 CC virus, hepatitis B or C virus, feline leukaemia virus) and to treat  
 CC autoimmune diseases (e.g. lupus erythematosus, type I diabetes,  
 CC rheumatoid arthritis). Some hybrid interferon fusion polypeptides may  
 CC block the antiviral/antiproliferative actions of IFNT, so can be used to  
 CC prevent immune responses induced by interferons, e.g. in organ  
 CC transplantation. The hybrid interferon fusion polypeptides can also be  
 CC used to raise antibodies, used e.g. for analysis of structure/function  
 CC relationships. The novel chimeric nucleic acid is used to produce  
 CC recombinant hybrid interferon fusion polypeptides. Hybrid interferon  
 CC fusion polypeptides are less toxic than type I interferons, so can be  
 CC administered at higher doses

XX SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 2; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 5.1e-91; Indels 0; Gaps 0;

Matches 170; Conservative 1; Mismatches 1; Gaps 0;

Qy 1 CYLSERLMLDARENKLKDLMNRNLSPHSICLQRDKDFGLPQMEVGDQLQKDOAFPVLYEM 60  
 Db 1 CYLSRKMLDARENKLKDLMNRNLSPHSICLQRDKDFGLPQMEVGDQLQKDOAFPVLYEM 60

61 LOQSFLFYTESSAAMDTTLEQQLCTGQQLDHTCRGVGMGEEDSELGNDPIVTY 120  
 61 LOQSFLFYTESSAAMDTTLEQQLCTGQQLDHTCRGVGMGEEDSELGNDPIVTY 120

Qy 1 CYLSERLMLDARENKLKDLMNRNLSPHSICLQRDKDFGLPQMEVGDQLQKDOAFPVLYEM 60  
 Db 1 CYLSRKMLDARENKLKDLMNRNLSPHSICLQRDKDFGLPQMEVGDQLQKDOAFPVLYEM 60

61 LQQSFNLFYTESSAAMDTTLEQQLCTGQQLDHTCRGVGMGEEDSELGNDPIVTY 120

Db 61 IQQSFNLFYTHESSAAWDTITLEQQLDRLTQGQVNGBEDSFLGNMDPIVTV 120  
 Qy 121 KRYFQGIYDIQEGYSDCAWEVIRVMRMALTVSTTLQRRLTRGGDILNSP 172  
 Db 121 KKYFQGIYDIQEGYSDCAWEVIRVMRMALTVSTTLQRRLTRGGDILNSP 172

RESULT 10  
 ABB07588 ID ABB07588 standard; protein; 172 AA.  
 XX AC ABB07588;  
 XX DT 08-MAY-2002 (first entry)  
 XX DE Ovine interferon-tau protein.  
 XX DE Hepatitis C virus; HCV infection; ovine; interferon-tau; ovIFN-tau; OAS;  
 XX KW 2', 5'-oligoadenylate synthetase; virucide; hepatotropic; IFN-tau.  
 XX OS Ovis aries.  
 XX PN WO200206343-A2.  
 XX PD 24-JAN-2002.  
 XX PP 19-JUL-2001; 2001WO-US022976.  
 XX PR 19-JUL-2000; 2000US-0219128P.  
 XX PR 17-OCT-2000; 2000JP-00317160.  
 XX PA (PERG-) PEPGEN CORP.  
 XX PI Sokawa Y, Liu C;  
 XX DR WPI; 2002-179784/23.  
 XX DR N-PSDB; ABA94936.  
 XX PT Oral-delivery composition for treating conditions relating to hepatitis  
 PT caused by hepatitis C virus, comprises ovine interferon-tau which  
 PT stimulates bloodstream levels of 2', 5'-oligoadenylate synthetase.  
 PS Example 1; Page 32-33; 33pp; English.

XX The invention provides an oral-delivery composition for use in treating  
 CC hepatitis C virus (HCV) in a HCV-infected patient. The composition  
 CC comprises ovine interferon-tau (ovIFN-tau) in a dosage effective to  
 CC stimulate bloodstream levels of 2', 5'-oligoadenylate synthetase (OAS).  
 CC The ovIFN-tau synthesizes OAS which degrades viral mRNA. A method is also  
 CC provided for monitoring the treatment of HCV by oral administration of  
 CC ovIFN-tau by measuring the blood levels of OAS prior to and after such  
 CC oral administration, and if necessary, adjusting the dose of IFN-tau  
 CC until a measurable increase in blood OAS level, relative to the level  
 CC observed prior to administration. The composition is useful for treating  
 CC hepatitis C caused by HCV and the method is useful for monitoring treatment  
 CC of HCV by oral administration of ovIFN-tau. The present sequence  
 XX represents an ovine interferon-tau protein  
 SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 5; Length 172;  
 Best Local Similarity 98.8%; Fred. No. 5.1e-91;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 Qy 1 CYLSRKLMLDARENKLDRMLNRLSPHSCLQDRKDGLPBMVSDOLQDQAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLDRMLNRLSPHSCLQDRKDGLPBMVSDOLQDQAFPVLYEM 60

Qy 61 IQQSFNLFYTHESSAAWDTITLEQQLDRLTQGQVNGBEDSFLGNMDPIVTV 120  
 Db 61 IQQSFNLFYTHESSAAWDTITLEQQLDRLTQGQVNGBEDSFLGNMDPIVTV 120

Qy 121 KKYFQGIYDIQEGYSDCAWEVIRVMRMALTVSTTLQRRLTRGGDILNSP 172  
 Db 121 KRYFQGIYDIQEGYSDCAWEVIRVMRMALTVSTTLQRRLTRGGDILNSP 172

RESULT 11  
 ADI17857 ID ADI17857 standard; protein; 172 AA.  
 XX AC ADI17857;  
 XX DT 22-APR-2004 (first entry)  
 XX DE Mature ovine interferon-tau, SEQ ID NO:2.  
 XX DE Interferon-tau; oral dosage form; oral administration; fasted state;  
 XX KW 2', 5'-oligoadenylate synthetase; OAS; autoimmune condition;  
 XX KW multiple sclerosis; diabetes mellitus; Hashimoto's thyroiditis;  
 XX KW rheumatoid arthritis; uveitis; psoriasis; systemic lupus erythematosus;  
 XX KW allergy; asthma; eczema; Crohn's disease; ulcerative colitis;  
 XX KW viral infection; HIV infection; hepatitis; cellular proliferation disorder; multiple myeloma; ovarian cancer;  
 XX KW hairy cell leukaemia; inflammatory disease; immunosuppressive; virucide;  
 XX KW cycostatic; antiinflammatory; neuroprotective; antidiabetic;  
 XX KW thyromimetic; antirheumatic; antiarthritic; ophthalmological;  
 XX KW antipsoriatic; dermatological; antiasthmatic; antiulcer;  
 XX KW anti-HIV; hepatotropic; vaccine; ovine; sheep.  
 XX OS Ovis aries.  
 XX OS Synthetic.  
 XX PN WO2003061728-A2.  
 XX PD 31-JUL-2003.  
 XX PF 16-JAN-2003; 2003WO-US001596.  
 XX PR 16-JAN-2002; 2002US-0349658P.  
 XX PA (PERG-) PEPGEN CORP.  
 XX PI Sokawa Y, Liu C;  
 XX DR WPI; 2003-598711/56.  
 DR N-PSDB; ADI17856.  
 XX The invention relates to a composition for use in treating a condition  
 PR responsive to interferon-tau, comprising an oral dosage form of interferon  
 PR fasted state to achieve an increased level of 2', 5'-oligoadenylate  
 PR synthetase, useful for treating a condition responsive to interferon-tau,  
 PR e.g. viral infection.  
 XX Claim 3; SEQ ID NO 2; 28pp; English.  
 PR The invention relates to a composition for use in the treatment of autoimmune  
 CC conditions (e.g., multiple sclerosis, diabetes mellitus, Hashimoto's  
 CC thyroiditis, rheumatoid arthritis, uveitis, psoriasis, systemic lupus  
 CC erythematosus, allergies, asthma, eczema, Crohn's disease or ulcerative  
 CC colitis), viral infections (e.g., HIV infection or hepatitis), disorders  
 CC associated with cellular proliferation (e.g., multiple myeloma, ovarian  
 CC cancer or hairy cell leukaemia), or inflammatory diseases. The present  
 XX sequence represents mature ovine interferon-tau.  
 SQ Sequence 172 AA;

Query Match 99.1%; Score 899; DB 7; Length 172;  
 Best Local Similarity 98.8%; Fred. No. 5.1e-91;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLKDMMRLSPHSCLQRDKDFGLPQEMVEGDOLOKQQAFFPVYEM 60  
 Db 1 CYLSRKMLDARENKLKDMMRLSPHSCLQRDKDFGLPQEMVEGDOLOKQQAFFPVYEM 60  
 Qy 61 LQOSFNLTYEHSAAWDTLLEQLCTLQOQLDHLDTCRQVMGEEDSELGNMDP1VTV 120  
 Db 61 LQOSFNLTYEHSAAWDTLLEQLCTLQOQLDHLDTCRQVMGEEDSELGNMDP1VTV 120  
 Qy 121 KKYFQGTYDYLQEKGSICAWEVIRVEMMRALTVSTTLQKRLTGMGGDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSICAWEVIRVEMMRALTVSTTLQKRLTGMGGDLNSP 172

## RESULT 12

ADM79177

ID ADM79177 standard; protein; 172 AA.

XX

AC ADM79177;

XX

DT 15-JUL-2004 (first entry)

XX

DE Mature ovine interferon tau protein SEQ ID NO:1.

XX

oral administration; interferon; IFN; ovine; mature interferon tau.

XX

Ovis aries.

OS WO2004032863-A2.

PN

XX

PD 22-APR-2004.

XX

PF 08-OCT-2003; 2003WO-US031999.

XX

PR 09-OCT-2002; 2002US-0417292P.

XX

(PEPG-) PEPGEN CORP.

XX

PI Manning MC, Nayar R;

XX

WPI; 2004-340799/31.

XX

A composition for oral administration of an interferon (IFN) comprises an

PT IFN and a species that stabilizes the IFN in an active form by

PT interaction between the interferon and the species.

XX

Example; SEQ ID NO 1; 52pp; English.

PS

XX

The present invention describes a composition for the oral administration

CC of an interferon (IFN) comprising an IFN and a species that stabilises

CC the IFN in an active form by interaction between the IFN and the species.

CC Also described: (1) preparing a protein for oral administration,

CC comprising formulating the protein with a species that stabilises the

CC protein in an active form by binding interaction between the protein and

CC the species; therefore the formulating results in a composition for oral

CC administration; and (2) selecting a dosage form composition for a protein

CC that achieves protein stabilization for biological activity upon in vivo

CC administration, comprising selecting a protein for formulation, preparing

CC solutions of the selected protein or polypeptide in different buffers at

CC different pH values, and measuring the effect of the buffer on the

CC protein's tertiary structure, where the measuring identifies buffers that

CC result retention of the protein's tertiary structure. The composition and

CC methods are useful for preparing oral dosage forms for administration of

CC proteins and polypeptides. The present sequence represents the mature

CC ovine interferon tau amino acid sequence, which is used in an example

CC from the present invention.

XX Sequence 172 AA;

Query Match

Best Local Similarity

Matches 170;

Conservative 1; Mismatches 1; Gaps 0; Score 899; DB 8; Length 172; Pred. No. 5 1.e-91; Indels 0; Gaps 0; This is the amino acid sequence of ovine interferon-tau.

Qy 1 CYLSERLMLDARENKLKDMMRLSPHSCLQRDKDFGLPQEMVEGDOLOKQQAFFPVYEM 60  
 Db 1 CYLSRKMLDARENKLKDMMRLSPHSCLQRDKDFGLPQEMVEGDOLOKQQAFFPVYEM 60  
 Qy 61 LQOSFNLTYEHSAAWDTLLEQLCTLQOQLDHLDTCRQVMGEEDSELGNMDP1VTV 120  
 Db 61 LQOSFNLTYEHSAAWDTLLEQLCTLQOQLDHLDTCRQVMGEEDSELGNMDP1VTV 120  
 Qy 121 KKYFQGTYDYLQEKGSICAWEVIRVEMMRALTVSTTLQKRLTGMGGDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSICAWEVIRVEMMRALTVSTTLQKRLTGMGGDLNSP 172

## RESULT 13

ADS13613

ID ADS13613 standard; protein; 172 AA.

XX

AC ADS13613;

XX

DT 16-DEC-2004 (first entry)

XX

Sheep interferon tau seqd 2.

DE

XX

immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic;

KW muscular; antiinflammatory; antirheumatic; antiarthritic; antiasthmatic;

KW dermatological; vaccine; interferon tau; 2',5'-oligoadenylate synthetase;

KW OAS; autoimmune disease; cancer; viral infection; multiple sclerosis;

KW hepatitis C infection; diabetes mellitus; systemic lupus erythematosus;

KW amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis;

KW asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.

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Ovis aries.

OS

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US2004191217-A1.

PN

XX

30-SEP-2004.

XX

PP 21-NOV-2003; 2003US-00719472.

XX

(SOKA/) SOKAWA Y.

PA

XX

(LIUC/) LIU C.

XX

Sokawa Y, Liu C;

XX

DR WPI; 2004-698654/68.

XX

N-PSDB; ADS13612.

XX

Treating a condition in a subject, e.g. autoimmune condition, cancer or

viral infection, comprises orally administering interferon-tau to the

intestinal tract in the absence of interferon-tau administration. The method

is useful for treating an autoimmune condition, cancer, or a viral

infection. The method is particularly useful for treating multiple

sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus

erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid

arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.

This is the amino acid sequence of ovine interferon-tau.

XX

Claim 2; SEQ ID NO 2; 38pp; English.

The invention describes a method of treating a condition in a human

subject responsive to interferon-tau therapy comprises orally

administering interferon-tau to the intestinal tract of the subject to

produce an initial measurable increase in the subject's blood 2',5'-

oligoadenylate synthetase (OAS) level, relative to the baseline OAS level in

the subject in the absence of interferon-tau administration. The method

is useful for increasing the blood 2',5'-oligoadenylate synthetase

level.

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Search completed: October 28, 2005, 14:56:02  
Job time : 122 secs

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1	901	99.3	195	2 JS0204
2	878	96.8	195	2 I47068
3	872	96.1	195	2 I47066
4	869	95.8	195	2 I47069
5	844	93.1	195	2 I46272
6	839	92.5	172	A61578
7	834	92.0	195	2 A61455
8	810	89.3	195	2 I47067
9	782	86.2	195	2 I47097
10	749	82.6	184	2 I47098
11	729	80.4	195	2 A19505
12	727	80.2	195	2 S23751
13	724	79.8	195	2 A0068
14	724	79.8	195	2 S23705
15	610	67.3	195	2 A53746
16	609	67.1	195	2 A61403
17	588	64.9	195	2 I47070
18	586	64.6	195	2 I46397
19	583	64.3	195	1 IBOII
20	514.5	56.7	190	S23711
21	500	55.1	195	1 IVO022
22	489.5	54.0	190	2 S23712
23	474	52.3	195	1 IVHUI
24	470.5	51.9	179	2 S23710
25	455	50.2	189	2 I56314
26	447	49.3	176	2 I56314
27	443	48.8	195	1 IVO021
28	48.6	48.6	189	1 IVHUI

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Maximum DB seq length:	2000000000	
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	2: pir2;*	
	3: pir3;*	
	4: pir4;*	
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JS0204	Choroblast interferon alpha precursor - sheep	
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C;Species: Ovis orientalis aries; Ovis ammon ries (domestic sheep)		
C;Date: 31-Mar-1990 #sequence revision 31-Mar-1990 #text change 09-Jul-2004		
C;Accession: S03799; B61403; JS0204; A60947; A53867; S00306; A60857; A60936		
R;Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.		
A;Submitted to the EMBL Data Library, June 1988		
A;Reference number: S03799		
A;Accession: S03799		
A;Molecule type: DNA		
A;Residues: 1-195 <STE>		
A;Cross-references: UNIPROT:P56828; EMBL:X07920; PIDN:CAA3075:		
R;Charlier, M.; Hue, D.; Boisard, M.; Martal, J.; Gaye, P.		
Mol. Cell. Endocrinol. 76, 161-171, 1991		
A;Title: Cloning and structural analysis of two distinct families of ovine interferon- <i>alpha</i>		
A;Reference number: A61403; PMID:9324492; PMID:1620971		
A;Accession: B61403		
A;Status: not compared with conceptual translation		
A;Molecule type: DNA		
A;Residues: 1-129, K, 131-195 <CHA>		
R;Charlier, M.; Hue, D.; Martal, J.; Gaye, P.		
Gene 77, 341-348, 1989		
A;Title: Cloning and expression of cDNA encoding ovine trophoblast: its identity with <i>c</i>		
A;Reference number: JS0204; PMID:89326151; PMID:2753362		
A;Accession: JS0204		
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A;Cross-references: GB:M26386; PID:9530199; PIDN:AAA31584.1; PID:9530200		
A;Experimental source: embryo		
R;Stewart, H.J.; McCann, S.H.E.; Northrop, A.J.; Lamming, G.E.; Flint, A.P.F.		
J. Mol. Endocrinol. 2, 65-70, 1989		
A;Title: Sheep antiluteolytic interferon - secreted interferon investigated in vitro		
A;Reference number: A53867; MUID:9004031; PMID:2475129		
A;Accession: A60947		
A;Molecule type: mRNA		
A;Residues: 1-195 <ST3>		
R;Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Marotti, K.R.; Polites, H.G.; Roberts, R.M.		
J. Reprod. Fertil. Suppl. 37, 127-138, 1989		
A;Title: Antiluteolytic effects of blastocyst-secreted interferon investigated in vitro		
A;Reference number: A53867; MUID:9004031; PMID:2530342		
A;Accession: A53867		
A;Molecule type: mRNA		
A;Residues: 1-195 <ST4>		
R;Imakawa, K.; Anthony, R.V.; Kazemi, M.; Marotti, K.R.; Polites, H.G.; Roberts, R.M.		
Nature 330, 377-379, 1987		
A;Title: Interferon-like sequence of ovine trophoblast protein secreted by embryonic trof		
A;Reference number: S06221; MUID:8806555; PMID:2446135		
A;Accession: S06221		
A;Molecule type: mRNA		
A;Residues: 1-27, RK, 30-105, 'E', 107-195 <IMA>		

A;Cross-references: GB:Y00287; NID:91357; PIDN:CAA68396.1; PID:91358 R;Charnigny, G.; Reinaud, P.; Huet, J.C.; Guillotot, M.; Charlier, M.; Pernollet, J.C.; FEBS Lett 228; 12-16, 1988	Qy 1 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 60 Db 24 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 83
A;Title: High homology between a trophoblastic protein (trophoblastin) isolated from ovine testis and a protein isolated from bovine mammary gland.	Qy 61 LQQSFNLFTYHSSAAWDTLLEBOLCTGLOQQLDHLDTCRGQNGBEDSELGNMDPIVTY 120 Db 84 LQQSFNLFTYHSSAAWDTLLEBOLCTGLOQQLDHLDTCRGQNGBEDSELGNMDPIVTY 143
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A;Molecule type: protein	
A;Residues: 24-68 <CHG>	
R; Stewart, H.J.; McCann, S.H.E.; Barker, P.J.; Lee, K.E.; Lamming, G.E.; Flint, A.P.F. J. Endocrinol. 115, R13-R15, 1987	Qy 121 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTYSTTLQRRLTRMGDILNSP 172 Db 144 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTSSTTLQRRLTRMGDILNSP 195
A;Reference number: A60827; MUID:89140688; PMID:2830359	
A;Accession: A60857	
A;Molecule type: protein	
A;Residues: 'X'25-'47, 'X'49-'51, 'D'53, 'W'59, 'X'G'62-'63 <ST2>	RESULT 3 Qy 147066 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 60 C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep) C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #ext_change 09-Jul-2004 C;Accession: I47066 R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K. Biol. Reprod. 48, 768-778, 1993 A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related proteins.
A;Residues: 'S'25-'27, 'E'28-'30, 'R'38-'44, 'E'46-'47 <ROB>	A;Reference number: 146397; MUID:93250155; PMID:8485241
A;Note: 29-Arg and 37-Arg were also found	A;Accession: I47066
C;Comment: This protein is one of the major secretory proteins synthesized in vitro by cultured trophoblast cells.	A;Status: preliminary; translated from GB/EMBL/DBJ
C;Comment: This protein prevents regression of the corpus luteum.	A;Molecule type: DNA
C;Comment: Southern blotting reported in reference A61403 suggests there are at least five interferon genes.	A;Residues: 1-195 <NEP>
C;Genetics:	A;Cross-references: UNIPROT:Q08070; GB:M88773; NID:94416522; PIDN:AAA31503.1; PID:9165827
A;Gene: IFNA10	C;Genetics:
C;Superfamily: interferon alpha	A;Gene: TP-010
F;1-23/Domain: signal sequence predicted <SIG>	C;Superfamily: interferon alpha
F;24-195/Product: trophoblast interferon alpha	
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Qy 1 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 60 Db 24 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 83	Qy 1 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 60 Db 24 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 83
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Qy 121 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTYSTTLQRRLTRMGDILNSP 172 Db 144 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTSSTTLQRRLTRMGDILNSP 195	Qy 121 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTYSTTLQRRLTRMGDILNSP 172 Db 144 KKYFOGIYDYLQERGSYSDCAWEIVRVEMMRALTSSTTLQRRLTRMGDILNSP 195
	RESULT 4 Qy 147069 CYLSERMLDARENKLIDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQQLDQAPVLYEM 60 C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep) C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #ext_change 09-Jul-2004 C;Accession: I47069 R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K. Biol. Reprod. 48, 768-778, 1993 A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related proteins.
A;Reference number: 146397; MUID:93250155; PMID:8485241	A;Accession: I47069
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A;Gene: TP-08	A;Gene: TP-08
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Db	24	CYSQRLMDARENLRLDRMNRSPHSCLQRDFGLPQEYEGDQLOEDQAFPVLEM	83
Qy	61	LOQSFNLFTYEHSSAAWDTLQLCTGQQLDHDTCRGQNGEEDSELGNMDPITV	120
C;Species: Capra aegagrus hircus (domestic goat)		:	
C;Date: 21-Feb-1997 #sequence_revision 21-Feb-1997 #text_change 09-Jul-2004		:	
Db	84	LOQSFNLFTYEHSSAAWDTLQLCTGQQLDHDTCRGQNGEEDSELGNMDPITV	143
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C;Keywords: glycoprotein; pregnancy maintenance		:	
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<b>RESULT 5</b>			
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C;Species: Capra aegagrus hircus (domestic goat)		:	
C;Accession: I46272		:	
R;Leaman, D.W.; Roberts, R.M.		:	
J;Interferon Res.	12	-11	1992
A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution		:	
A;Reference number: I46272; MUII:92242937; PMID:1374107		:	
A;Accession: I46272		:	
A;Status: preliminary; translated from GB/EMBL/DDJB		:	
A;Molecule type: DNA		:	
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A;Gene: CTP-1		:	
C;Superfamily: interferon alpha		:	
Query Match Score 844; DB 2; Length 195;		:	
Best Local Similarity 93.1%; Pred. No. 8.3e-70;		:	
Matches 161; Conservative 3; Mismatches 8; Indels 0; Gaps 0;		:	
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Qy	61	LOQSFNLFTYEHSSAAWDTLQLCTGQQLDHDTCRGQNGEEDSELGNMDPITV	120
Db	84	LOQSFNLFTYEHSSAAWDTLQLCTGQQLDHDTCRGQNGEEDSELGNMDPITV	143
Qy	121	KKVFQGIYDLYQEKYSDCWEIVRVENMRLATVSTTLQKRLTKGGDLNSP	172
C;Keywords: glycoprotein; pregnancy maintenance		:	
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<b>RESULT 6</b>			
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C;Accession: A61578		:	
R;Watkins, S.P.; Jeacock, M.K.; Savva, D.; Shepherd, D.A.L.		:	
Int. J. Biochem.	23	-1013-1018	1991
A;Title: Ovine trophoblast protein-one: evidence for possible glycosylation.		:	
A;Reference number: A61578; MUID:92155417; PMID:1786844		:	
A;Accession: A61578		:	
A;Molecule type: mRNA		:	
A;Residues: 1-172 <WT>		:	
C;Superfamily: interferon alpha		:	
C;Keywords: glycoprotein; pregnancy maintenance		:	
F;78/Binding Site: carbohydrate (Asn) (covalent)		:	#status predicted
Query Match Score 839; DB 2; Length 172;		:	
Best Local Similarity 91.9%; Pred. No. 2e-69;		:	
Matches 158; Conservative 8; Mismatches 6; Indels 0; Gaps 0;		:	
Qy	1	CYLSERLMDARENLRLDRMNRSPHSCLQRDFGLPQEYEGDQLOEDQAFPVLEM	60
Db	1	CYLSRMLMDARENLRLDRMNRSPHSCLQRDFGLPQEYEGDQLOEDQAFPVLEM	60

RESULT 7	
Qy	61 LQQSNFLFYTTESSAAWDTTLEQLCTGLQQQLDHLDTCTRGQVGMGDEDSLGKGNMDPVTYV 120
Db	61 LQQSNFLFYTTESSAAWNTTLEQLCTGLQQQLDHLDTCTRGQVGMGDEDSLGKGNMDPVTYV 120
Qy	121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRUTKMGDLNSP 172
Db	121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTSSTLQKRUTKMGDLNSP 172
RESULT 8	
Qy	A61455 trophoblast protein 1 precursor - sheep N;Alternate names: interferon C;Species: Ovis ammon aries, Ovis ammon aries (domestic sheep) C;Date: 15-Oct-1994 #sequence_revision 15-Oct-1994 #text_change 09-Jul-2004 C;Accession: A61455 ; S12624 R;Roberts, R.M.; Cross, J.C.; Farin, C.E.; Hansen, T.R.; Kleemann, S.W.; Imakawa, J.; Reprod. Fertil. Suppl., 41, 63-74, 1990 A;Title: Interferons at the placental interface. A;Reference number: A61455 ; MUID:91012357; PMID:2213717 A;Accession: A61455 A;Status: preliminary A;Molecule type: mRNA A;Residues: 1-195 <ROB> A;Cross-references: UNIPROT:Q29429 R;Kleemann, S.W.; Imakawa, K.; Roberts, R.M. Nucleic Acids Res., 18, 6724, 1990 A;Title: Sequence variability among ovine trophoblast interferon cDNA. A;Reference number: S12624 ; MUID:91067497; PMID:1701245 A;Accession: S12624 A;Status: preliminary A;Molecule type: mRNA A;Residues: 1-195 <KLE> A;Cross-references: EMBL:X56343; NID:91155013; PIDN:CAA39783.1; PID:91155014 A;Experimental source: clone ctp-1 p6 C;Superfamily: interferon alpha F;24-195/Product: trophoblast protein 1 #status predicted <MAT> Query Match 92.0% Score 834; DB 2; Length 195; Best Local Similarity 91.9%; Pred. No. 6. 8e-69; Indels 0; Gaps 0; Matches 158; Conservative 7; Mismatches 7; Indels 0; Gaps 0;
Qy	1 CYLSERIMLDARENLLKLDRMNRLSPHSICLDRKDFLPQEMVVEGDLQKDOAFPPVLYEM 60
Db	24 CYLSRKLMLDARENLLKLDRMNRLSPHSICLDRKDFLPQEMVVEGDLQKDOAFPPVLYEM 83
Qy	61 LQQSNFLFYTTESSAAWDTTLEQLCTGLQQQLDHLDTCTRGQVGMGDEDSLGKGNMDPVTYV 120
Db	84 LQQSNFLFYTTESSAAWNTTLEQLCTGLQQQLDHLDTCTRGQVGMGDEDSLGKGNMDPVTYV 143
Qy	121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRUTKMGDLNSP 172
Db	144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTSSTLQKRUTKMGDLNSP 195

C;Superfamily: interferon alpha				
Query Match 9				
I47057	trophoblast protein-1 - Sheep			
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)				
C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 09-Jul-2004				
C;Accession: I47097	R;Leaman, D.W.; Roberts, R.M.			
J;Interferon Res. 12, 1-11, 1992	A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution			
A;Reference: I46272; MUID:9242937; PMID:1374107	A;Accession: I47097			
A;Status: preliminary	A;Molecule type: translated from GB/EMBL/DDBJ			
A;Residues: 1-195 <LEA>	A;Cross-references: UNIPROT:P28169; GB:M73241; PID:9166025			
C;Genetics:	A;Gene: OPTP-1			
C;Superfamily: interferon alpha				
Query Match 9				
I47057	trophoblast protein-1 - Sheep			
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)				
C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 09-Jul-1999				
C;Accession: I47098	R;Leaman, D.W.; Roberts, R.M.			
J;Interferon Res. 12, 1-11, 1992	A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution			
A;Reference: I46272; MUID:9242937; PMID:1374107	A;Accession: I47098			
A;Status: preliminary	A;Molecule type: translated from GB/EMBL/DDBJ			
A;Residues: 1-184 <LEA>	A;Cross-references: GB:M73242; PID:9166027			
C;Genetics:	A;Gene: OPTP-1			
C;Superfamily: interferon alpha				
RESULT 9				
I47057	trophoblast protein-1 - Sheep			
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)				
C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 09-Jul-2004				
C;Accession: I47097	R;Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.			
J;Biol. Chem. 266, 3030-3067, 1991	A;Title: The genes for the trophoblast interferons and the related interferon-alphaII pot			
A;Reference number: A39505; MUID:91131606; PMID:1704373	A;Accession: A39505			
A;Status: preliminary	A;Molecule type: mRNA			
A;Residues: 1-195 <HAN>	A;Cross-references: UNIPROT:P156596; GB:M619308; PID:9163213; PMID:9163214;			
C;Superfamily: interferon alpha	A;Gene: OPTP-1			
F:24/195/Product: interferon alpha-II #status predicted <MAT>				
RESULT 10				
I47058	trophoblast protein-1 - Sheep			
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)				
C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 16-Jul-1999				
C;Accession: I47098	R;Leaman, D.W.; Roberts, R.M.			
J;Interferon Res. 12, 1-11, 1992	A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution			
A;Reference: I46272; MUID:9242937; PMID:1374107	A;Accession: I47098			
A;Status: preliminary	A;Molecule type: DNA			
A;Residues: 1-184 <LEA>	A;Cross-references: UNIPROT:P156596; EMBL:X65539; PID:9765; MUID:90334707; PMID:2378676			
C;Genetics:	A;Gene: OPTP-1			
C;Superfamily: interferon alpha				
RESULT 11				
A39505	trophoblast interferon 4 precursor (clone bTP4) - bovine			
C;Species: Bos primigenius tauris (cattle)				
C;Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004				
C;Accession: A39505	R;Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.			
J;Biol. Chem. 266, 3030-3067, 1991	A;Title: The genes for the trophoblast interferons and the related interferon-alphaII pot			
A;Reference number: A39505; MUID:91131606; PMID:1704373	A;Accession: A39505			
A;Status: preliminary	A;Molecule type: mRNA			
A;Residues: 1-195 <HAN>	A;Cross-references: UNIPROT:P156596; GB:M619308; PID:9163213; PMID:9163214;			
C;Superfamily: interferon alpha	A;Gene: OPTP-1			
F:24/195/Product: interferon alpha-II #status predicted <MAT>				
RESULT 12				
S23751	trophoblast interferon type I precursor - bovine			
C;Species: Bos primigenius tauris (cattle)				
C;Date: 19-Feb-1994 #sequence_revision 10-Nov-1995 #text_change 09-Jul-2004				
C;Accession: S23751	R;Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.			
J;Mol. Endocrinol. 4, 275-287, 1990	A;Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early ;			
A;Reference number: S23751; MUID:90334707; PMID:2378676	A;Accession: S23751			
A;Status: preliminary	A;Molecule type: DNA			
A;Residues: 1-195 <STE>	A;Cross-references: UNIPROT:P156596; EMBL:X65539; PID:9765; MUID:90334707; PMID:2378676			
C;Superfamily: interferon alpha	A;Gene: OPTP-1			
RESULT 13				
A39505	trophoblast interferon 4 precursor (clone bTP4) - bovine			
C;Species: Bos primigenius tauris (cattle)				
C;Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004				
C;Accession: A39505	R;Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.			
J;Biol. Chem. 266, 3030-3067, 1991	A;Title: The genes for the trophoblast interferons and the related interferon-alphaII pot			
A;Reference number: A39505; MUID:91131606; PMID:1704373	A;Accession: A39505			
A;Status: preliminary	A;Molecule type: mRNA			
A;Residues: 1-195 <HAN>	A;Cross-references: UNIPROT:P156596; GB:M619308; PID:9163213; PMID:9163214;			
C;Superfamily: interferon alpha	A;Gene: OPTP-1			
F:24/195/Product: interferon alpha-II #status predicted <MAT>				

	Matches	139;	Conservative	14;	Mismatches	18;	Indels	0;	Gaps	0;	
Qy	1	CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM	60								Matches 139; Conservative 13; Mismatches 19; Indels 0; Gaps 0;
Db	24	CYLEDHMLGARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM	60								Qy 1 CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM 60
Qy	61	LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV	120								Db 24 CYLEDHMLGARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM 60
Db	84	LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV	143								Qy 61 LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 120
Qy	121	KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS	171								Db 84 LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 143
Db	144	KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS	194								Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171
Db	144	KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS	194								Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 194

## RESULT 13

A40068

trophoblast protein-1 precursor (clone btp509) - bovine

(cattle)

C;Species: Bos primigenius taurus

C;Date: 28-Feb-1992 #sequence\_revision 28-Feb-1992 #text\_change 09-Jul-2004

C;Accession: A40068

R:Hansen, T.R.; Hansen, T.R.; Malathy, P.V.; Anthony, R.V.; Polites, H.G.; Marotti, K.R.

Mol. Endocrinol. 3, 127-139; 1989

A;Title: Molecular cloning and characterization of complementary deoxyribonucleic acids  
ron-alpha-II.

A;Reference number: A40068; PMID:89127268; PMID:2521687

A;Accession: A40068

A;Status: preliminary

A;Molecule type: mRNA

A;Residues: 1-195 &lt;NHA&gt;

A;Cross-references: UNIPROT:Q9NYK6; UNIPROT:Q9GLL6; GB:M31556

C;Superfamily: interferon alpha

P;1-23/Domain: signal sequence #status predicted &lt;NAT&gt;

P;24-195/Product: trophoblast protein-1 #status predicted &lt;SIG&gt;

Query Match 79.8%; Score 724; DB 2; Length 195;

Best Local Similarity 81.3%; Pred. No. 7.5e-59;

Matches 139; Conservative 13; Mismatches 19; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM
 60 |  |  |  |  |  |  |  |  | Db 53746 trophoblast - human |
Db 24 CYLEDHMLGARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM
 60 |  |  |  |  |  |  |  |  | Qy 1 CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM 60 |
Qy 61 LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV
 120 |  |  |  |  |  |  |  |  | Db 53746 trophoblast - human |
Db 84 LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV
 143 |  |  |  |  |  |  |  |  | Qy 61 LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 120 |
Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS
 171 |  |  |  |  |  |  |  |  | Db 84 LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 143 |
Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS
 194 |  |  |  |  |  |  |  |  | Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171 |

Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 194

Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171

Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 194

Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171

Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 194

Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171

Db 144 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 194

## RESULT 14

B39505 trophoblast protein-1 precursor (clone 330) - bovine

(cattle)

C;Species: Bos primigenius taurus

C;Accession: B39505

R:Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.

J. Biol. Chem. 266, 3060-3067; 1991

A;Title: The genes for the trophoblast interferons and the related interferon-alphaII p

A;Reference number: A39505; MUID:91131606; PMID:1704373

A;Accession: B39505

A;Status: preliminary

A;Molecule type: DNA

A;Residues: 1-195 &lt;NAN&gt;

A;Cross-references: UNIPROT:P15696; GB:M60903; PID:92140962; PMID:AAB67325.1;

C;Superfamily: interferon alpha

P;1-23/Domain: signal sequence #status predicted &lt;SIG&gt;

P;24-195/Product: trophoblast protein-1 #status predicted &lt;NAT&gt;

Query Match 79.8%; Score 724; DB 2; Length 195;

Best Local Similarity 81.3%; Pred. No. 7.5e-59;

Job time : 26 secs

Search completed: October 28, 2005, 15:00:53

Job time : 26 secs

## RESULT 15

A40068

trophoblast protein-1 precursor (clone btp509) - bovine

(cattle)

C;Species: Homo sapiens (man)

C;Date: 07-Oct-1994 #sequence\_revision 07-Oct-1994 #text\_change 09-Jul-2004

C;Accession: A53746

R:Whaley, A.E.; Meka, C.S.R.; Harbison, L.A.; Hunt, J.S.; Imakawa, K.

J. Biol. Chem. 269, 10864-10868; 1994

A;Title: Identification and cellular localization of unique interferon from human p

A;Reference number: A53746; MUID:94193794; PMID:7511610

A;Accession: A53746

A;Status: preliminary

A;Molecule type: mRNA

A;Residues: 1-195 &lt;NHA&gt;

A;Cross-references: UNIPROT:P27290; GB:L25664; PID:9479010; PMID:9479011;

C;Superfamily: interferon alpha

Query Match 67.3%; Score 610; DB 2; Length 195;

Best Local Similarity 68.6%; Pred. No. 1.9e-48;

Matches 118; Conservative 20; Mismatches 34; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM
 60 |  |  |  |  |  |  |  |  | Db 669 583 trophoblast - human |
Db 24 CDLSQNHLVGRNLDEMRLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM
 60 |  |  |  |  |  |  |  |  | Qy 1 CYLSERMLDARENKLILDNRNLSPHSCLQRKDFFGLPQENVEGDLQKDDQAFPVYEM 60 |
Qy 61 LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV
 120 |  |  |  |  |  |  |  |  | Db 669 583 trophoblast - human |
Db 84 LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV
 143 |  |  |  |  |  |  |  |  | Qy 61 LQGSNFLFTEHSSAAWDTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 120 |
Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS
 171 |  |  |  |  |  |  |  |  | Db 84 LQGCNFLFTEHSSAAWNTTLEQLCTLGLQQQLDHLDTCRGQVMGEEDESELGNMDPITYV 143 |
Db 144 KRYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS
 195 |  |  |  |  |  |  |  |  | Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171 |

Db 144 KRYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 195

Qy 121 KKYFGQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTGMGGDLNS 171

Db 144 KRYFGQIYDYLQEKGSYSDCAWEIVRVMRMALSSSTTLQKRLTGMGGDLNS 195

## RESULT 16

B39505 trophoblast protein-1 precursor (clone 330) - bovine

(cattle)

C;Species: Bos primigenius taurus

C;Accession: B39505

R:Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.

J. Biol. Chem. 266, 3060-3067; 1991

A;Title: The genes for the trophoblast interferons and the related interferon-alphaII p

A;Reference number: A39505; MUID:91131606; PMID:1704373

A;Accession: B39505

A;Status: preliminary

A;Molecule type: DNA

A;Residues: 1-195 &lt;NAN&gt;

A;Cross-references: UNIPROT:P15696; GB:M60903; PID:92140962; PMID:AAB67325.1;

C;Superfamily: interferon alpha

P;1-23/Domain: signal sequence #status predicted &lt;SIG&gt;

P;24-195/Product: trophoblast protein-1 #status predicted &lt;NAT&gt;

Query Match 79.8%; Score 724; DB 2; Length 195;

Best Local Similarity 81.3%; Pred. No. 7.5e-59;

Job time : 26 secs

## RESULT 17

B39505 trophoblast protein-1 precursor (clone 330) - bovine

(cattle)

C;Species: Bos primigenius taurus

C;Accession: B39505

R:Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.

J. Biol. Chem. 266, 3060-3067; 1991

A;Title: The genes for the trophoblast interferons and the related interferon-alphaII p

A;Reference number: A39505; MUID:91131606; PMID:1704373

A;Accession: B39505

A;Status: preliminary

A;Molecule type: DNA

A;Residues: 1-195 &lt;NAN&gt;

A;Cross-references: UNIPROT:P15696; GB:M60903; PID:92140962; PMID:AAB67325.1;

C;Superfamily: interferon alpha

P;1-23/Domain: signal sequence #status predicted &lt;SIG&gt;

P;24-195/Product: trophoblast protein-1 #status predicted &lt;NAT&gt;

Query Match 79.8%; Score 724; DB 2; Length 195;

Best Local Similarity 81.3%; Pred. No. 7.5e-59;

Job time : 26 secs

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OM protein - protein search, using sw model				
run on: October 28, 2005, 14:49:06 ; Search time 115.5 Seconds (without alignments) 762.577 Million cell updates/sec				
title: US-10-719-472-3				
perfect score: 907				
sequence: 1 CYLSERMLDARENLLKLDR.....TVSTTLOKRLLMGGDLNSP 172				
scoring table: BLOSUM62				
Gapext 10.0 , Gapext 0.5				
searched: 1612378 seqs, 51209187 residues	1612378			
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minimum DB seq length: 0				
maximum DB seq length: 2000000000				
post-processing: Minimum Match 0% Maximum Match 100% Listing First 45 summaries				
database :				
UniProt 03:*				
1: uniprot_sprot: 2: uniprot_trembl:*				
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.				
SUMMARIES	%			
result No.	Query Score	Match Length	DB ID	Description
1	904	99.7	195	1 INT2_SHEEP
2	899	99.1	195	1 INT1_SHEEP
3	896	98.8	172	1 INT3_SHEEP
4	885	97.6	195	1 INT4_SHEEP
5	881	97.1	195	1 INT5_SHEEP
6	878	96.8	195	1 INT7_SHEEP
7	872	96.1	195	1 INT9_SHEEP
8	869	95.8	195	1 INT8_SHEEP
9	844	93.1	195	1 INT_CAPI
10	834	92.0	195	1 INT6_SHEEP
11	828	91.3	195	2 QEUZ49
12	828	91.3	195	2 QEUZ50
13	820	90.4	172	2 QERFZ8
14	810	89.3	195	1 INTA_SHEEP
15	802	88.4	195	2 QEUZ47
16	792	87.3	195	2 QEUZ43
17	784	86.4	195	2 QEUZ42
18	782	86.2	195	1 INTB_SHEEP
19	778	85.8	195	1 INT_OVIMO
20	730	80.5	195	1 INTI_BOVIN
21	725	79.9	172	1 INT2_BOVIN
22	723	79.7	172	1 QRMJ29
23	723	79.7	195	2 QMYK6
24	711	78.4	172	1 INT3_BOVIN
25	706	77.8	195	1 QCLL6
26	700	77.2	172	2 QDDUH3
27	698	77.0	195	2 QGLL5
28	684	75.4	195	1 INT_GIRCA
29	654	72.1	195	1 INT_CEREL
30	610	67.3	195	2 OTM2XY
31	609	67.3	195	2 OTM2XY
Alignments				
RESULT 1				
INT2_SHEEP				
ID _ INT2_SHEEP				
AC P56839; P08316;				PRT; 195 AA.
DT 01-AUG-1988 (Rel. 08, Created)				
DT 30-MAY-2000 (Rel. 39, Last sequence update)				
DT 05-JUL-2004 (Rel. 44, Last annotation update)				
DE Interferon tau-2 precursor (IFN-tau2) ("Trophoblast protein-1") (TP-1)				
DS (Trophoblast) (Antiluteolytic protein)				
GN Name=IFTNT2;				
OS Ovis aries (Sheep)				
OC Bukaoyta; Merazoa; Chordata; Craniata; Vertebrata; Bivalvia; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Caprinae; Ovis				
NCB_TaxID=9940;				
[1] SEQUENCE FROM N.A. (IFN-TAU2C).				
RX MEDLINE=90040431; PubMed=24530342;				
[2] SEQUENCE FROM N.A. (IFN-TAU2C).				
RX MEDLINE=90351575; PubMed=24712129;				
RA Stewart H.J., Flint A.P., Lamming G.E., McCann S.H., Parkinson T.J.;				
RT "Antiluteolytic effects of blastocyst-secreted interferon investigated in vitro and in vivo in the sheep.";				
RL J. Reprod. Fertil. Suppl. 37:127-138 (1989).				
RN [3] SEQUENCE FROM N.A. (IFN-TAU2C).				
RX MEDLINE=9326151; PubMed=2753362; DOI=10.1016/0378-1119(89)90082-6;				
RA Stewart H.J., McCann S.H., Northrop A.J., Lamming G.E., Flint A.P.;				
RT "Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA levels".				
RL J. Mol. Endocrinol. 2:65-70 (1989).				
RN [4] SEQUENCE FROM N.A. (IFN-TAU2C).				
RX MEDLINE=91067497; PubMed=1701245;				
RA Kleiman S.W., Imakawa K., Roberts R.M.;				
RT "Sequence variability among ovine trophoblast interferon cDNA's."				
RL Nucleic Acids Res. 18:6724-6724 (1990).				
RN [5] SEQUENCE OF 24-195 FROM N.A. (IFN-TAU2 AND IFN-TAU2B).				
RP TISSUE=Embryo;				
RX MEDLINE=91067497; PubMed=1701245;				
RA Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.;				
RT "Identification of the expressed forms of ovine interferon-tau in the peri-implantation conceptus: sequence relationships and comparative biological activities."				
RL Submitted (2019) to the EMBL/GenBank/DBJ databases.				
[6] SEQUENCE OF 24-195 FROM N.A. (IFN-TAU2 AND IFN-TAU2B).				
RX MEDLINE=88137579; PubMed=3254170; DOI=10.1016/0014-5793(88)80574-X;				

Charpigny G., Reinaud P., Huet J.-C., Guillermot M., Charlier M., Pernollet J.-C., Marral J.; "High homology between a trophoblastic protein (trophoblastin) isolated from ovine embryo and alpha-interferons.", FEBS Lett. 228:12-16 (1988).

FUNCTION.  
MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;

[8] CIRCULAR DICHROISM: ANALYSIS, AND 3D-STRUCTURE MODELING.  
MEDLINE=95062134; PubMed=7971949;  
Spencer T.E., Bazer F.W.; Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V., Krishna N.R., Pontzer C.H.; "Predicted structural motif of IFN tau.", Protein Eng. 7:863-867 (1994).

[9] 3D-STRUCTURE MODELING.  
MEDLINE=96318252; PubMed=8746786;  
Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.; "A three-dimensional model of interferon-tau.", J. Interferon Cytokine Res. 15:1053-1060 (1995).

[10] REVIEW.  
MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
Martial J.-P., Chene N.M., Huynh L.P., Larillard R.M., Reinaud P.B., Guillot M.W., Charlier M.A., Charpigny S.Y.; "IFN-tau: a novel subtype I IFNL. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.", Biochimie 80:755-777 (1998).

-|- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone Prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antifertilial and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

-|- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

-|- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

-|- DEVELOPMENTAL STAGE: Major secretary product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

-|- POLYMORPHISM: There seems to be three variants of IFN-tau 2:  
-| APBV2/B7 (shown here), BPBV4 and CP8.

-|- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

-|- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphal subfamily.

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		Query Match	Match	Score	DB 1;	Length
RN	RP	3D-STRUCTURE MODELING.		98.8%		172;
RX	RP	3D-MEDLINE-9331852; PubMed-8746786;		98.8%		
RA	RA	Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;		Pred. No. 8.1e-75;		
RT	RT	"A three-dimensional model of interferon-tau.";		Mismatches 1;		
RL	RL	J. Interferon Cytokine Res. 15:1033-1060(1995).		Indels 0;		
RN	RN	[5]		Gaps 0;		
RP	RP	MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;				
RX	RX	Marcal J.L., Chene N.M., Huygh L.P., L'Haridon R.M., Reinraud P.B.,				
RA	RA	Guilloumot M.W., Charlier M.A., Charpigny S.Y.;				
RT	RT	"IFN-tau: a novel subtype I IFN. Structural characteristics, non-				
RT	RT	ubiquitous expression, structure-function relationships, a pregnancy				
RT	RT	hormonal embryonic signal and cross-species therapeutic				
RT	RT	potentialities".				
RL	RL	Biochimie 80:755-777(1998).				
CC	-!	FUNCTION: Paracrine hormone primarily responsible for maternal				
CC		recognition of pregnancy. Interacts with endometrial receptors,				
CC		probably type I interferon receptors, and blocks estrogen receptor				
CC		expression, preventing the estrogen-induced increase in oxytocin				
CC		receptor expression in the endometrium. This results in the				
CC		suppression of the pulsatile endometrial release of the luteolytic				
CC		hormone prostaglandin F2-alpha, hindering the regression of the				
CC		corpus luteum (luteolysis), and therefore a return to ovarian				
CC		cyclicity. This, and a possible direct effect of IFN-tau on				
CC		prostaglandin synthesis, leads in turn to continued ovarian				
CC		progesterone secretion, which stimulates the secretion by the				
CC		endometrium of the nutrients required for the growth of the				
CC		conceptus. In summary, displays particularly with particular weak				
CC		cytotoxicity, high antiluteolytic activity and immunomodulatory				
CC		properties. In contrast with other IFNs, IFN-tau is not virally				
CC		inducible.				
CC	-!	SUBCELLULAR LOCATION: Secreted into the uterine lumen.				
CC	-!	- TISSUE SPECIFICITY: Constitutively and exclusively expressed in				
CC		the mononuclear cells of the extra-embryonic trophoblast.				
CC	-!	DEVELOPMENTAL STAGE: Major secretary product synthesized by the				
CC		sheep conceptus between days 13 and 21 of pregnancy.				
CC	-!	POLYMORPHISM: There seems to be two variants of IFN-tau 3: A/B/PV1				
CC		(shown here) and B/PBV3.				
CC	-!	MISCELLANEOUS: IFN-tau genes are intronless. They evolved from				
CC		IFN-omega genes in the ruminantia suborder and have continued to				
CC		duplicate independently in different lineages of the ruminantia.				
CC		They encode for proteins very similar in sequence but with				
CC		different biological potency and pattern of expression.				
CC	-!	SIMILARITY: Belongs to the alpha/beta interferon family. IFN-				
CC		alphaII subfamily.				
CC		[6]				
CC		This SWISS-PROT entry is copyright. It is produced through a collaboration				
CC		between the Swiss Institute of Bioinformatics and the EMBL outstation -				
CC		the European Bioinformatics Institute. There are no restrictions on its				
CC		use by non-profit institutions as long as its content is in no way				
CC		modified and this statement is not removed. Usage by and for commercial				
CC		entities requires a license agreement (See <a href="http://www.isb-sib.ch/announce/">http://www.isb-sib.ch/announce/</a>				
CC		or send an email to license@isb-sib.ch).				
CC		[7]				
DR	EMBL: AF158117; AA049691; -					
DR	PROB00050; Interferon_abd; 1.					
DR	PROSITE; PS00252; INTERFERON_A_B_D; FALSE_NEG.					
KW	Antiviral; Cytokine; Hormone; Multigene_family; Polymorphism;					
KW	Pregnancy.					
FT	DISULFID 1 99					
FT	DISULFID 29 139					
FT	VARIANT 87 87					
FT	VARIANT 124 125					
FT	VARIANT 130 130					
SQ	SEQUENCE 172 AA; 19866 MW; 7BFF1F036545C8E2 CRC64;					

probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

-!- SUBCELLULAR LOCALIZATION: Secreted into the uterine lumen.  
 -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.  
 -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.  
 -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

-!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.

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CC -I- IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

-!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.

CC -HSSP: P56328; CRA39781.1; -.

DR InterPro; IPR005079; 4\_helix\_cytokine.

DR PFam; PF00143; Interferon\_abd.

DR PRINTS; PRO0266; INTERFERONAb.

DR ProDom; PD000550; Interferon\_abd; 1.

DR PROSTBE; PS00252; INTERFERON\_AB\_D; 1.

KW Antiviral; Cytokine; Hormone; Multi-gene family; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-4.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22209 MW; 408BD4BDB5AA931 CRC64;

Query Match 97.6%; Score 885; DB 1; Length 195;  
 Best Local Similarity 97.1%; Pred. No. 9; 9e-74;  
 Matches 167; Conservative 4; Mismatches 71; Indels 0; Gaps 0;

Qy 1 CYSLERMLDARENKLUDRMRNLSPHSICLDRKDGLPQNEVGDLQKQAFPVYEM 60

Ds 24 CYLSQRMLDARENKLUDRMRNLSPHSICLDRKDGLPQNEVGDLQKQAFPVYEM 83

Qy 61 LQOSFNLFYTHSSAAMDTTLQLCTGLOQOLDHDTCRQVMGEEDSELGNMDFIVTV 120

Ds 84 LQOSFNLFYTHSSAAMDTTLQLCTGLOQOLDHDTCRQVMGEKDSELGNMDFIVTV 143

Qy 121 KRYFQGTYDYLQBKGYSDCAWEVVRMMRAITVSTTLQRLTRKMGDDLNSP 172

Ds 144 KRYFQGTHDYLQBKGYSDCAWEVVRMMRAITVSTTLQRLTRKMGDDLNSP 195

RESULT 5  
 INTS\_SHEEP  
 ID INTS\_SHEEP  
 AC Q28559;  
 DT 30-MAY-2000 (Rel. 39, Created)

CC	30-MAY-2000 (Rel. 39, Last sequence update)
CC	05-JUL-2004 (Rel. 44, Last annotation update)
DS	Interferon tau-5 precursor (IFN-tau5) (Trophoblast antiluteolytic protein)
DS	(Trophoblast) (Antiluteolysin) (Trophoblast antiluteolytic protein)
DS	Name=IFNTS;
GN	Ovis aries (Sheep)
OS	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Butheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Caprinae; Ovis.
OC	Caprinae; Ovis.
OC	NCBI_TaxID=9940;
RN	[1]
RP	SEQUENCE FROM N_A.
RP	Medline=91067437; PubMed=701245;
RA	Klemann S.W., Imakawa K., Roberts R.M.;
RA	Klemann S.W., Imakawa K., Roberts R.M.;
RA	"Sequence variability among ovine trophoblast interferon cDNA.";
RN	[2]
RP	FUNCTION.
RP	Medline=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;
RA	Spencer T.B., Baizer F.W.;
RA	"Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";
RA	Endocrinology 137:1144-1147 (1996).
RN	[3]
RP	CIRCULAR DICHROISM ANALYSIS, AND 3D-STRUCTURE MODELING.
RP	Medline=95062134; PubMed=7971949;
RA	Jarpe M.A., Johnson H.M., Baizer F.W., Ott T.L., Curto B.V.;
RA	Sendra N.R., Pontzer C.H.;
RA	"Predicted structural motif of IFN tau."
RA	Protein Eng. 7:863-867(1994).
RN	[4]
RP	3D-STRUCTURE MODELING.
RP	Medline=96318222; PubMed=8746786;
RA	Sendra T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;
RA	"A three-dimensional model of interferon-tau."
RA	J. Interferon Cytokine Res. 15:1053-1060(1995).
RN	[5]
RP	REVIEW.
RP	Medline=99081096; PubMed=9856198; DOI=10.1016/S0300-9084(99)80029-7;
RA	Martial J.L., Chee N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B., Guillermot M.W., Charlier M.A., Charpigny S.Y.;
RA	"IFN-tau: a novel subtype I IFN. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";
RA	Biochimie 80:755-777(1998).
-!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the luteolytic suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.	
-!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.	
-!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.	
-!- DEVELOPMENTAL STAGE: Major secretary product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.	
-!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with	

CC different biological potency and pattern of expression.  
 CC -I SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alphaiII subfamily.

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 CC or send an email to license@isb-sib.ch).

CC DR EMBL; X56342; CAA39782.1; - .

CC DR HSSP; P5628; 1B5L.

CC DR InterPro; IPR009079; 4 helix cytokine.

CC DR InterPro; IPR00471; Interferon\_abd.

CC DR PFam; PF00143; Interferon; 1.

CC DR PRINTS; PRO0266; INTERFERONAB.

CC DR ProDom; PDO00550; Interferon\_abd; 1.

CC DR PSIBLAST; PS00232; INTERFERON A\_B\_D; 1.

CC KW Antiviral, Cytokine, Hormone, Multigene family; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 By similarity.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22163 MW; 14E9A038B60A562 CRC64;

Query Match 97.1%; Score 881; DB 1; Length 195;  
 Best Local Similarity 96.5%; Fred. No. 2.3e-73;  
 Matches 166; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERILMLDARENKLIDRNRLSPHSCLQRDKDFGLPQMVVEDQLQKNDQAPVLYEM 60

Db 24 CYLSQRLMLDARENKLIDRNRLSPHSCLQRDKDFGLPQMVVEDQLQKNDQAPVLEM 83

Qy 61 LQQSFLNFYTHESSAAWDTTLLEQLTGQQLQQLDHDLTCTRGQYNGEEDSELGNMDPITYV 120

Db 84 LQQSFNLNFYTHESSAAWDTTLLEQLTGQQLQQLDHDLTCTRDQYNGEKSBLGNMDPITYV 143

Qy 121 KKYFGQIYDYLQEQGYSDCAWEVIVRMMLATYSTTLQKRLTQMGDLNSP 172

Db 144 KKYFGQIYDYLQEQGYSDCAWEVIVRMMLATYSTTLQKRLTQMGDLNSP 195

RESULT 6

INT7\_SHEEP ID INT7\_SHEEP STANDARD; PRT; 195 AA.

AC Q08071; 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau-7 precursor (IFN-tau7) (Trophoblast protein-1) (TP-1)  
 DE (Trophoblastin) (Antiluteolytic protein) (TP-07).

GN Name=IFNT7;

OS Ovis aries (Sheep).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Ovis.

OX NCBI\_TaxId=9940;

RN [1] DE Sequence from N.A.

RP TISSUE=Trophoblast.

RX MEDLINE=3250155; PubMed=8483241;

RA Nephev K.P.; Whiley A.E.; Christenson R.K.; Imakawa K.;

RT "Differential expression of distinct mRNAs for ovine trophoblast

RL Bio. Reprod. 48:768-778(1993).

RN [2]

RP FUNCTION.

RX MEDLINE=96174004; PubMed=8603586; DOI=10.1210/en.137.3.1144;

RA Spencer T.B.; Bazer F.W.;

RT "Ovine interferon tau suppresses transcription of the estrogen

receptor and oxytocin receptor genes in the ovine endometrium.";

RT RN Endocrinology 137:1144-1147(1996).  
 [3]

CC CIRCULAR DICHROISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=5062134; PubMed=7971949;

RA Jarpe M.A.; Johnson H.M.; Bazer F.W.; Ott T.L.; Curto E.V., Krishna N.R.; Ponzer C.H.; "Predicted structural motif of IFN tau.";

RA Protein Eng. 7:863-867(1994).

RT RN 3D-STRUCTURE MODELING.

RX MEDLINE=96318252; PubMed=8746786;

RA Senda T.; Saitoh S.-I.; Mitsui Y.; Li J.; Roberts R.M.; J. Interferon Cytokine Res. 15:1053-1060(1995);

RN [5]

RX REVIEW.

RX MEDLINE=92081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martal J.L.; Chene N.M.; Hayun L.P.; L'Haridon R.M.; Reinhard P.B., Guillotot M.W.; Charlier M.A.; Charpigny S.Y.; "IFN-tau: a novel subtype I IFNL. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities." Biochimie 80:755-777(1998).

CC -I FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progestrone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and anti-proliferative potency, concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC -I SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -I TISSUE SPECIFICITY: Constitutive and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

CC -I DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

CC -I MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

CC -I SIMILARITY: Belongs to the alpha/beta interferon family. IFN- alphaiII subfamily.

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CC EMBL; M88771; AAA31505.1; - .

CC PIR; I41068; 147068.

CC HSSP; P56828; 1B5D.

CC InterPro; IPR009079; 4 helix cytokine.

CC InterPro; IPR00471; Interferon\_abd.

CC Pfam; PF0143; Interferon; 1.

CC PRINTS; PR00266; INTERFERON.

CC PRODOM; PD000550; Interferon\_abd; 1.

CC PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

CC KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.

FT	SIGNAL	1	23	By similarity.
FT	CHAIN	24	195	Interferon tau-7.
FT	DISULFID	24	122	By similarity.
FT	DISULFID	52	162	By similarity.
SQ	SEQUENCE	195 AA;	22223 MW;	1444ABDEB0ABAB48 CRC64;
Query Match	Best Local Similarity	96.8%	Score	878; DB 1; Length 195;
Matches	1e6; Conservative	3;	Mismatches	3; Indels
Qy	1 CYSLERMLDARENKLDRMRNLSPHSCLDKDFGLPQENVEGDLQKQAFPVYEM	60	CC	ubiquitous expression, structure-function relationships, a pregnancy
Db	24 CYLSRRLMLDARENKLDRMRNLSPHSCLDKDFGLPQENVEGDLQKQAFPVYEM	83	CC	hormonal embryonic signal and cross-species therapeutic potentialities."
Qy	61 LOQSFNLFTYESSAANDTLLIEQLCTLGLOQQIDHLDTCRGYGMGEEDSELGNMDPIVTY	120	CC	Biochimie 80:755-777 (1998).
Db	84 LOQSFNLFTYESSAANDTLLIEQLCTLGLOQQIDHLDTCRGYGMGEEDSELGNMDPIVTY	143	CC	- - FUNCTION: Paracrine hormone primarily responsible for maternal
Qy	121 KCFQGIYDYLQKGYSDCAWEVLRVMMRALTVSTTLQKRLTKGMDLNSP	172	CC	recognition of pregnancy. Interacts with endometrial receptors,
Db	144 KCFQGIYDYLQKGYSDCAWEVLRVMMRALTSSTLQKRLTKGMDLNSP	195	CC	probably type I interferon receptors, and blocks estrogen receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic
Qy	Name=IFNT9;		CC	hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian
AC	ID INT9_SHEEP	STANDARD;	PRT;	195 AA.
AC	Q08070;			cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high anti-luteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.
CC			CC	- - SUBCELLULAR LOCATION: Secreted into the uterine lumen.
CC			CC	- - TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.
CC			CC	- - DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.
CC			CC	- - MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.
CC			CC	- - SIMILARITY: Belongs to the alpha/beta interferon family. IFN-
CC			CC	alpha/beta subfamily.
CC			CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <a href="http://www.isb-sib.ch/announce/">http://www.isb-sib.ch/announce/</a> or send an email to license@isb-sib.ch).
CC			CC	EMBL: M88073; AAA31503.1; -
CC			DR	PIR: 147066; I47066.
CC			DR	HSSP; P5628; 1B5L.
CC			DR	InterPro: IPR009709; 4 helix cytokine.
CC			DR	InterPro: IPR00471; Interferon_abd.
CC			DR	Pfam: PF00143; Interferon_1.
CC			DR	PRINTS: PR00266; INTERFERON_AB.
CC			DR	ProDom: PD000550; Interferon_abd_1.
CC			DR	Prosite: PS00525; INTERFERON_A_B_D; 1.
CC			DR	Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.
CC			FT	SIGNAL 1 23 By similarity.
CC			FT	CHAIN 24 195 Interferon tau-9.
CC			FT	DISULFID 24 162 By similarity.
CC			FT	SEQUENCE 195 AA; 21217 MN; 00DE9CB089D98493 CRC64;
CC			FT	Query Match 96.1%; Score 872; DB 1; Length 195;
CC			FT	Best Local Similarity 95.9%; Pred. No. 1..6e-72;
CC			FT	Matches 165; Conservatve 5; Mismatches 2; Indels 0; Gaps 0;
Qy			Qy	1 CYLSRMLDARENKLDRMRNLSPHSCLDKDFGLPQENVEGDLQKQAFPVYEM 60
Db			Db	24 CYLSRMLDARENKLDRMRNLSPHSCLDKDFGLPQENVEGDLQKQAFPVYEM 83
Qy			Qy	: 61 LOQSFNLFTYESSAANDTLLIEQLCTLGLOQQIDHLDTCRGYGMGEEDSELGNMDPIVTY 120
Db			Db	84 LOQTNFLFTYESSAANDTLLIEQLCTLGLOQQIDHLDTCRGYGMGEEDSELGNMDPIVTY 143
RX	Medline=948521;			
RA	Nephew K.P.; Whaley A.E.; Christensen R.K.; Imakawa K.;			
RA	RT "Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related sheep type I interferons.";			
RA	RT Bio. Reprod. 48:768-778(1993).			
RN	FUNCTION.			
RP	RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;			
RA	RA Spencer T.E.; Bazer F.W.;			
RA	RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";			
RA	RT Endocrinology 137:1144-1147(1996).			
RN	[3]			
RP	RP CIRCULAR DICROISM ANALYSIS, AND 3D-STRUCTURE MODELING.			
RA	RA Jarpe M.A.; Johnson H.M.; Bazer F.W.; Oct T.L.; Caruto E.V.,			
RA	RT "Predicted structural motif of IFN tau-1";			
RA	RA Senda T.; Saitoh S.-I.; Mitsui Y.; Li J.; Roberts R.M.;			
RA	RT "A three-dimensional model of interferon-tau.";			
RA	RA J. Interferon Cytokine Res. 15:1053-1060(1995).			
RN	[4]			
RP	RP 3D-STRUCTURE MODELING.			
RA	RA MEDLINE=96118252; PubMed=746716;			
RA	RA Senda T.; Saitoh S.-I.; Mitsui Y.; Li J.; Roberts R.M.;			
RA	RT "Predicted structural motif of IFN tau-1";			
RA	RA "A three-dimensional model of interferon-tau.";			
RA	RA J. Interferon Cytokine Res. 15:1053-1060(1995).			
RX	REVIEW.			
RA	RX MEDLINE=99081096; PubMed=865548; DOI=10.1016/S0300-9084(99)80039-7;			
RA	RA Martel J.-L.; Chene N.M.; Huynh L.P.; L'Haridon R.M.; Reinaud P.B.,			
RA	RA Guillotot M.W.; Charlier M.A.; Charpigny S.Y.;			
RT	RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-			

**RESULT\_B**

INT8\_SHEEP STANDARD; PRT; 195 AA.

ID 008072; PRT; 195 AA.

AC 008072; PRT; 195 AA.

DT 05-MAY-2000 (Rel. 39, Created)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau-8 precursor (IFN-tau8) (TP-1)

DE (Trophoblast) (Antiluteolytic protein) (TP-08).

DE (TP-08).

GN Name=IENF8;

OS Ovis aries (Sheep).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Ovis.

OX NCBI\_TaxID=9940;

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE=Trophoectoderm;

RX MEDLINE=9250155; PubMed=8485241;

RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;

RT "Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related sheep type I interferons.";

RL Biol. Reprod. 48:768-778(1993).

RN [2]

RP FUNCTION.

RX MEDLINE=9174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;

RA Spencer T.E., Bazer F.W.;

RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";

RL Endocrinology 137:1144-1147(1996).

RN [3]

RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.

RX MEDLINE=9062134; PubMed=7971949;

RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto B.V.,

RA Krishna N.R., Pontzer C.H.;

RT "Predicted structural motif of IFN tau.";

RL Protein Eng. 7:863-867(1994).

RN [4]

RP 3D-STRUCTURE MODELING.

RX MEDLINE=96318252; PubMed=8746786;

RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;

RT "A three-dimensional model of interferon-tau.";

RL J. Interferon Cytokine Res. 15:1033-1060(1995).

RN [5]

RP REVIEW.

RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Marcell J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,

RA Guillotot M.W., Charlier M.A., Charpigny S.Y.;

RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-ubiquitous embryonic synthesis, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities";

RT Biochimie 80:775-777(1998).

CC !- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone Prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This is also a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progestrone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high anti-luteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC !- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC !- TISSUE SPECIFICITY: Constitutive and exclusively expressed in the mononuclear cells of the extra-embryonic trophoectoderm.

CC !- DEVELOPMENTAL STAGE: Major secretary product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

CC !- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

CC !- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.

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CC EMBL; MB8772; AAA31506.1; -.

DR PIR; I47069; I47089.

DR HSSP; P56828; 1BSL.

DR InterPro; IPR009079; 4 helix cytokine.

DR InterPro; IPR00471; Interferon\_abd.

DR Pfam; PF00143; Interferon\_1.

DR PRINTS; PR00266; INTERFERON\_AB.

DR PRODOM; PD000550; Interferon\_abd\_1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D\_1.

DR Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.

FT SIGNAL\_1 23 By similarity.

FT CHAIN 24 195 By similarity.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22157 MW; 7F92C5EBC8D5AB8 CRC64;

Query Match 95.8%; Score 869; DB 1; Length 195;

Best Local Similarity 95.3%; Pred. No. 3e-72;

Matches 164; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

OY 1 CYLSBLMLDARENKLQLDRMNRLSPHSCLQDRKDQFGLPQEMYEGDQLOQDQAPVLYDM 60

Db 24 CYLSQSLMLDARENKLQLDRMNRLSPHSCLQDRKDQFGLPQEMYEGDQLOQDQAPVLYM 83

OY 61 LQQQNLFLPTEHSSAAWDTLLEQDCTGQQLDHTGRQNGEEDSSELGNMDPVTV 120

Db 84 LQQQSNLFLPTEHSSAAWDTLLDQCTGQQLDHTGRQNGEEDSSELGNMDPVTV 143

OY 121 KKYYQGIVTYDLOQERGSDCAWETVRVEMRALTIVSTTLQKRLTKMGGLNNSP 172

Db 144 KKYYQGIVTYDLOQERGSDCAWETVRVEMRALTIVSTTLQKRLTKGGDLNNSP 195

RESULT 9

INT\_CAPII STANDARD; PRT; 195 AA.

ID INT\_CAPII

AC P28171; 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)

DT 30-MAY-2000 (Rel. 39, Last annotation update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau Precursor (IFN-tau) (Trophoblast protein-1) (TP-1) (Trophoblast (Antiluteolysin) (Trophoblast antiluteolytic protein).

DE (Capra hircus) (Goat).

OS Capra hircus.

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;

OC Mammalia; Butheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Capra.

OX NCBI\_TaxID=9925;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=92242937; PubMed=1374107;

RA Leaman D.W., Roberts R.M.;

"Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution of related genes among mammals.";  
J. Interferon Res. 12:1-1(1992).  
[2]

REVIEWS.  
MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martal J.L., Chene N.M., Huynh L.P., Larivière R.M., Renaud P.B.,  
PA Guillot M.W., Charlier M.A., Charpigny S.Y.;  
"IFN-tau: a novel subtype I IFN1. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";

RT Biochimie 80: 755-777(1998).

RL	24 CYLSRRMLDARENLRLLDRMRNRLSPHSQCDRKDFGLPQEMVEGQDQLQKDQASCVLYEM 83 RT distribution of related genes among mammals."; J. Interferon Res. 12:1-1(1992). [2]	Db	24 CYLSRRMLDARENLRLLDRMRNRLSPHSQCDRKDFGLPQEMVEGQDQLQKDQASCVLYEM 83 RT 61 LQQSFNLFYTBHSSAAWDTTLEQLCTGLOQQLDHAIDTCRQVMGEBSEIGNMDPIVT 120 RN 84 LQQSFNLFYTBHSSAAWDTTLDQQLCTGLOQQLDHAIDTCRQVMGEBKDSIGNMDPIVT 143
RP		Qy	61 LQQSFNLFYTBHSSAAWDTTLEQLCTGLOQQLDHAIDTCRQVMGEBSEIGNMDPIVT 120 84 LQQSFNLFYTBHSSAAWDTTLDQQLCTGLOQQLDHAIDTCRQVMGEBKDSIGNMDPIVT 143
RX		Db	121 KKYFQIYDYLQEKYSDCAWEVREMMALTVSTLQRKLTKMGDLASP 172
RA	Martial J.L., Chene N.M., Huynh L.P., Larivière R.M., Renaud P.B., PA Guillot M.W., Charlier M.A., Charpigny S.Y.; "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities."; <p>RT Biochimie 80: 755-777(1998).</p> <p>CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high anti-luteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.</p> <p>CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.</p> <p>CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.</p> <p>CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.</p> <p>CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.</p> <p>CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.</p> <p>CC -!- This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <a href="http://www.isb-sib.ch/announce/or_send_an_email_to_license@isb-sib.ch">http://www.isb-sib.ch/announce/or_send_an_email_to_license@isb-sib.ch</a>).</p> <p>CC -!- DR M3243; AAA30907_1; - .</p> <p>DR PIR: I46272; I46272.</p> <p>DR HSSP: P5628; IB5L.</p> <p>DR InterPro: IPR005079; 4 helix cytokine.</p> <p>DR InterPro: IPR000471; Interferon_abd.</p> <p>DR PFAM: PF00143; Interferon_1.</p> <p>DR PRINTS: PRO0266; INTERFERONAB.</p> <p>DR PROSITE: PS00252; INTERFERON_A_B_D_1.</p> <p>KW Antiviral; Cytokine; Hormone; Pregnancy; Signal.</p> <p>FT SIGNAL 1 23 By similarity.</p> <p>FT CHAIN 24 195 Interferon tau.</p> <p>FT DISULFID 24 122 By similarity.</p> <p>FT DISULFID 52 162 By similarity.</p> <p>SQ SEQUENCE 195 AA; 22172 MW; 049981DB1ICB67 CRC64;</p> <p>Query Match 93.1%; Score 844; DB 1; Length 195; Best Local Similarity 93.6%; Pred. No. 6.1e-70; Matches 161; Conservative 3; Mismatches 8; Indels 0; Gaps 0;</p> <p>RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7; RA Marcial J.L., Chene N.M., Huynh L.P., Larivière R.M., Renaud P.B., PA Guillot M.W., Charlier M.A., Charpigny S.Y.; RA "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";</p> <p>RT REVIEW.</p> <p>RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7; RA Marcial J.L., Chene N.M., Huynh L.P., Larivière R.M., Renaud P.B., PA Guillot M.W., Charlier M.A., Charpigny S.Y.; RA "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";</p> <p>RT</p>		

potentialities";  
 RL Biochimie 80:755-777 (1998).  
 CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 recognition of pregnancy. Interacts with endometrial receptors,  
 probably type I interferon receptors, and blocks estrogen receptor  
 expression, preventing the estrogen-induced increase in oxytocin  
 receptor expression in the endometrium. This results in the  
 suppression of the pulsatile endometrial release of the luteolytic  
 hormone prostaglandin F2-alpha, hindering the regression of the  
 corpus luteum (luteolysis), and therefore a return to ovarian  
 cyclicity. This, and a possible direct effect of IFN-tau on  
 prostaglandin synthesis, leads in turn to continued ovarian  
 progesterone secretion, which stimulates the secretion by the  
 endometrium of the nutrients required for the growth of the  
 conceptus. In summary, displays particularly high antiviral and  
 antiproliferative potency concurrently with particular weak  
 cytotoxicity, high anti-luteolytic activity and immunomodulatory  
 properties. In contrast with other IFNs, IFN-tau is not virally  
 inducible.  
 CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 the mononuclear cells of the extra-embryonic trophoblast.  
 CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 sheep conceptus between days 13 and 21 of pregnancy.  
 CC -!- POLYMORPHISM: There seems to be four variants of IFN-tau 6:  
 CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 IFN-omega genes in the ruminants suborder and have continued to  
 duplicate independently in different lineages of the ruminants.  
 They encode for proteins very similar in sequence but with  
 different biological potency and pattern of expression.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 alphaII subfamily.

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 or send an email to license@isb-sib.ch).

DR EMBL; X56243; CAA39783.1;  
 DR EMBL; AF158823; AA044975.1; -.  
 DR EMBL; AF158822; AA044974.1; -.  
 DR PRODOM; P000050; Interferon\_abd; 1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine; Glycoprotein; Hormone; Multigene family;  
 KW Polymorphism; Pregnancy; Signal.  
 PT SIGNAL 1 23 By similarity.  
 PT DISULFID 24 195 Interferon\_tau-6.  
 PT DISULFID 24 122 By similarity.  
 PT CARBOHYD 52 162 By similarity.  
 PT VARIANT 101 101 N-linked (GlcNAc. . .) (Potential).  
 PT VARIANT 130 130 K -> E (In IFN-tau6A and IFN-tau6B).  
 PT VARIANT 136 136 K -> N (In IFN-tau6A and IFN-tau6B).  
 PT VARIANT 188 188 T -> M (In IFN-tau6A).  
 SQ SEQUENCE 195 AA; 22102 MW; CB4283928CA387 CRC64;

Query Match 92.0%; Score 834; DB 1; Length 195;  
 Best Local Similarity 91.9%; Pred. No. 5.1e-69;  
 Matches 158; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

Qy 1 CYLSERLMILDARENKLIDRMNRLSPHSCLQDRKDQAFPVLYEM 60

Db 24 CYLSERKLMDARENKLIDRMNRLSPHSCLQDRKDQAFPVLYEM 83  
 Qy 61 LQQSFNLFTEHSSAAWDTTLLBOLCTGQQQLDHLPTCRGVNGEEDSLELGNDPITYV 120  
 Db 84 LQQSFNVFTEHSSAAWNTTLLBOLCTGQQQLDHLPTCRGVNGEKSLELGNDPITYV 143  
 Qy 121 KKTFQGIGYDYLQEKGYSDCAWEVIRVEMMRALTVSTTLOKRLTGMGGDLNSP 172  
 Db 144 KKTFQGIGHDLQEKGYSDCAWEVIRVEMMRALTSSTTLOKRLTGMGGDLNSP 195  
 RESULT 11  
 Q6U249 PRELIMINARY; PRT; 195 AA.  
 TD Q6U249; PRELIMINARY;  
 AC Q6U249;  
 DT Q6U249; (TREMBLrel. 27, Created)  
 DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMBLrel. 27, Last annotation update)  
 DE Interferon-tau 3.  
 OS Capra hircus (Goat).  
 OC Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Etheria; Cetartiodactyla; Pecora; Bovidae;  
 OC Caprinae; Capra.  
 NCBI\_TAXID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Baly A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.Q.,  
 RA Barbato G.F.;  
 RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR HSSP; AV35729; AQ56198.1; -.  
 DR HSSP; PG6828; 1BSL.  
 DR GO; GO:0005516; C extracellular; IEA.  
 DR GO; GO:0005526; P defense response; IEA.  
 DR InterPro; IPR009019; 4-helix\_cytokine.  
 DR InterPro; IPR00411; Interferon\_abd.  
 PRFM; PF00143; Interferon\_1.  
 DR PRINTS; PR00266; INTERFERON\_AB.  
 DR SMART; SM00076; IFabD\_1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine.  
 SQ SEQUENCE 195 AA; 22294 MW; 323B7022D1D16E69E CRC64;  
 DR Query Match 91.3%; Score 868; DB 2; Length 195;  
 DR Best Local Similarity 92.4%; Pred. No. 1.8e-68;  
 DR Matches 159; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 1 CYLSERLMILDARENKLIDRMNRLSPHSCLQDRKDQAFPVLYEM 60  
 Db 24 CYLSERKLMDARENKLIDRMNRLSPHSCLQDRKDQAFPVLYEM 83  
 Qy 61 LQQSFNLFTEHSSAAWDTTLLBOLCTGQQQLDHLPTCRGVNGEEDSLELGNDPITYV 120  
 Db 84 LQQSFNLFTEHSSAAWNTTLLBOLCTGQQQLDHLPTCRGVNGEKSLELGNDPITYV 143  
 RESULT 12  
 Q6U250 PRELIMINARY; PRT; 195 AA.  
 ID Q6U250; PRELIMINARY;  
 AC Q6U250;  
 DT Q6U250; (TREMBLrel. 27, Created)  
 DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TREMBLrel. 27, Last annotation update)  
 DE Interferon-tau 2b (Interferon-tau 2a).  
 OS Capra hircus (Goat).  
 OC Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;	FT NON_TER	SQ 1	MW; 65988B22F91335046 CRC64;
OC Caprinae; Capra;	SQ	SEQUENCE FROM N.A.;	Score 90.4%; DB 2; Length 172;
OX NCBI_TaxID=9325;	RL	SEQUENCE FROM N.A.;	Best Local Similarity 91.9%; Pred. No. 8.e-68;
RN [1]	RP	Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.	Matches 158; Conservative 8; Indels 0; Gaps 0;
RA Ealy A.D.; Wagner S.K.; Shells A.E.; Whitley N.C.; Kiesling D.O.,	CC	--SIMILARITY: Belongs to the alpha/beta interferon family.	
RA Barbato G.F.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
RA Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
RA EMBL; EMBL; AAQ56197.1; -.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
RA HSSP; PS6828; 1BSL.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
GO; GO:005576; C:extracellular; IEA.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
DR GO; GO:005126; P:hematopoietin/interferon-class (D200-domain. . . ; IEA.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
DR InterPro; IPR009079; 4 helix cytokine.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
DR PFam; PF00143; Interferon_abd.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
PRINTS; PR00266; INTERFERONAB.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
PRODom; PD000550; Interferon_abd; 1.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
SMART; SMART0076; IFabd; 1.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
PROSITE; PS00252; INTERFERON_A_B_D; 1.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
KW Antiviral; Cytokine.	DR	--SIMILARITY: Belongs to the alpha/beta interferon family.	
SEQUENCE 195 AA; C99AC236A716F654 CRC64;	SQ	SEQUENCE 195 AA;	Score 91.3%; DB 2; Length 195;
Query Match	DR	Best Local Similarity 92.4%; Pred. No. 1.8e-68;	
Best Local Similarity 92.4%; Pred. No. 1.8e-68;	Db	Matches 159; Conservative 5; Mismatches 8; Indels 0; Gaps 0;	
Qy 1 CYLSQRLMLDARENKLILDMMRLSPHSCLQRKDGLPQENVGDLQKDAFPVYEM 60	Qy	1 CYLSERMLMLDARENKLILDMMRLSPHSCLQRKDGLPQENVGDLQKDAFPVYEM 60	
Db 24 CYLSRRLMLDARENKLILDMMRLSPHSCLQRKDGLPQENVGDLQKDAFPVYEM 83	Db	24 CYLSRRLMLDARENKLILDMMRLSPHSCLQRKDGLPQENVGDLQKDAFPVYEM 83	
Qy 61 KKYFOGIVDYLQKGYSDCAWETVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 172	Qy	61 KKYFOGIVDYLQKGYSDCAWETVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 172	
Db 84 KKYFOGITHDYLQKEYSDCAWEIVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 195	Db	84 KKYFOGITHDYLQKEYSDCAWEIVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 195	
Qy 121 KKYFOGIVDYLQKGYSDCAWETVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 172	Qy	121 KKYFOGIVDYLQKGYSDCAWETVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 172	
Db 144 KKYFOGITHDYLQKEYSDCAWEIVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 195	Db	144 KKYFOGITHDYLQKEYSDCAWEIVRVEMMRLTVAWTTLQKRQLTKMGDDLNSP 195	
RESULT 13			
Q6RFZ8 ID Q6RFZ8	PRELIMINARY;	PRT;	172 AA.
AC Q6RFZ8;			
DT 05-JUL-2004	(TREMBLe1, 27, Created)		
DT 05-JUL-2004	(TREMBLe1, 27, Last sequence update)		
DT 05-JUL-2004	(TREMBLe1, 27, Last annotation update)		
DE Interferon tau (Fragment).			
OS Ovis aries (Sheep).			
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC Caprinae; Ovis.			
NCBI_TaxID=9940;			
RN SEQUENCE FROM N.A.			
RA Wang X., Wang M., Xia C., Zhu D., Liou C., Bai Y.;			
RA Submitted (DEC-2003) to the EMBL/GenBank/DBJ databases.			
CC --SIMILARITY: Belongs to the alpha/beta interferon family.			
DR HSSP; AA999657; AAR8592.1; -.			
DR GO; GO:005576; C:extracellular; IEA.			
DR GO; GO:0006952; P:defense response; IEA.			
DR InterPro; IPR009079; 4 helix cytokine.			
DR PFam; PF00143; Interferon_abd.			
DR PRINTS; PR00266; INTERFERONAB.			
PRODom; PD000550; Interferon_abd; 1.			
SMART; SMART0076; IFabd; 1.			
PROSITE; PS00252; INTERFERON_A_B_D; 1.			
KW Antiviral; Cytokine.			
RESULT 14			
ID INTA_SHEEP	STANDARD;	PRT;	195 AA.
AC Q08055;			
DT 30-MAY-2000	(Rel. 39, Created)		
DT 05-JUL-2004	(Rel. 39, Last sequence update)		
DT 05-JUL-2004	(Rel. 44, Last annotation update)		
DE Interferon tau-10 precursor (IFN-tau10) (Trophoblast protein-1) (TP-1)			
DE (Trophoblast) (Antiluteolytic protein) (Trophoblast anti-luteolytic protein) (TP-0).			
GN Name=IFNT10;			
OS Ovis aries (Sheep).			
OC Bovaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC Caprinae; Butheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
NCBI_TaxID=9940.			
RN SEQUENCE FROM N.A.			
RC TISSUE=Trophectoderm;			
RX MEDLINE=91250155; PubMed=1485241;			
RX Nephev K.P., Whaley A.E., Christensen R.K., Imakawa K.;			
RX "Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related sheep type I interterons."			
RL Biol. Reprod. 48:768-778(1993).			
RN [2]			
RP FUNCTION.			
RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;			
RA Spencer T.B., Bazer F.W.;			
RA "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium."			
RL Endocrinology 137:1144-1147(1996).			
RN [3]			
RP CIRCULAR DICHOROISM ANALYSIS, AND 3D-STRUCTURE MODELING.			
RX MEDLINE=95062134; PubMed=7971949;			
RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;			
RA "A three-dimensional model of interferon-tau."			
RA Krishna N.R., Pontzer C.H., Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto B.V.,			
RA "Predicted structural motif of IFN tau."			
RL Protein Eng. 7:863-867(1994).			
RN [4]			
RP 3D-STRUCTURE MODELING.			
RX MEDLINE=96182522; PubMed=8746786;			
RA Martal J.L., Chee N.M., Huynh L.P., L'Haridon R.M., Renaud P.B., Guillemot M.W., Charlier M.A., Charpigny S.Y.;			
RA "IFN-tau: a novel subtype I IFN. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities."			

RESULT	15
Q6UZ47	PRELIMINARY; PRT; 195 AA.
ID	Q6UZ47;
AC	Q6UZ47;
DT	05-JUL-2004 (TREMBLrel). 27, Last sequence update
DT	05-JUL-2004 (TREMBL-rel). 27, Last annotation update
DT	05-JUL-2004 (TREMBLrel). 27, Last annotation update
DE	Interferon-tau 4b (Interferon-tau 4c) (Interferon-tau 4e) (Interferon-tau 4a).
DE	Capra hircus (Goat).
OS	Mammalia; Eutheria; Chordata; Cracynila; Ruminantia; Bovidae; Caprinae; Capra.
OC	NCBI_Taxid:9225;
OC	NCBI_Taxid:9225;
RN	[1]
RP	SEQUENCE FROM N.A. Baley A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O., Barbato G.F.; Submitted (JUL-2003) to the EMBL/GenBank/DDBJ databases.
RL	-!- SIMILARITY: Belongs to the alpha/beta interferon family.
CC	EMBL: AY357331; AAQ056200.1; -
DR	EMBL: AY357332; AAQ056201.1; -
DR	EMBL: AY357333; AAQ056202.1; -
DR	EMBL: AY357334; AAQ056203.1; -
DR	EMBL: AY357330; AAQ056199.1; -
DR	HSP; PS568276; IBSL.
DR	GO: GO:000576; C:extracellular; IEA.
DR	GO: GO:0005126; F:hematopoietin/interferon-class (D200-domain. . . ; IEA.
DR	GO: GO:0005952; P:define response; IEA.
DR	InterPro: IPR000471; Interferon_abd.
DR	InterPro: IPR0005079; 4 helix cytokine.
DR	PRINTS: PRO0266; INTERFERONAB.
DR	ProDom: PD000550; Interferon_abd; 1.
DR	SMART: SM00076; Ifabd; 1.
DR	PROSITE: PS00252; INTERFERON_A_B_D; 1.
KW	Antiviral; Cytokine.
SQ	SEQUENCE 195 AA; 22354 MW; D3644CA9A972D8FC4 CRC64;
Query Match	88.4%; Score 802; DB 2; Length 195;
Best Local Similarity	90.1%; Pred. No. 4.e-66;
Matches 155; Conservative	7; Mismatches 10; Indels 0; Gaps
Qy	1 CYLSERMLDARENKLKDLMRNLSPHSCLQRDKDFGLPQEMVYGDOLQKDPFVLYEM 6
Db	24 CYLSRMLDARENRLDRLMRNLSPHSCLQRDKDFGLPQEMVYGDOLQKDPFVLYEM 8
Qy	61 LQQSFLNFTYEHSSAAWDTTLQLCTGLQQQLDHLDTCRGQMGEBDSELGNMDPITYV 1
Db	84 LQQTENLFRTESSAAWNTTLLLEQHHTGLOQQIEBDLTCRGVNGEKESELGRNDPITYV 1
Qy	121 KCFQGTYDYLQKGSYDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172
Db	144 KCFQGTHDYLQKESYDCAWEIVRVMRMALTSSTLQRKLTGMGGDLNSP 195

GenCore version 5.1.6  
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OM protein - protein search, using SW model

Run on: October 28, 2005, 14:51:03 ; Search time 24.5 Seconds  
(without alignments)

524.067 Million cell updates/sec

Title: US-10-719-472-3  
Perfect score: 907  
Sequence: 1 CYLSBRMLDARENLLKLLDR.....TVSTTILQRKLTKMGDDNSP 172

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 0%

Listing First 45 summaries

Database : Issued\_Patents\_AA:  
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 2: /cgm2\_6/ptodata/1/iaa/5B\_COMB.pep:  
 3: /cgm2\_6/ptodata/1/iaa/6A\_COMB.pep:  
 4: /cgm2\_6/ptodata/1/iaa/6B\_COMB.pep:  
 5: /cgm2\_6/ptodata/1/iaa/PC10S\_COMB.pep:  
 6: /cgm2\_6/ptodata/1/iaa/backfile1.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	899	99.1	172	1	US-08-438-753B-2
2	899	99.1	172	1	US-08-443-893A-2
3	899	99.1	172	2	US-08-631-328-2
4	899	99.1	172	2	US-08-455-021B-2
5	899	99.1	172	2	US-08-455-021B-2
6	899	99.1	172	3	US-09-045-467-2
7	899	99.1	172	3	US-08-954-18
8	899	99.1	172	3	US-08-616-904-2
9	894	98.6	172	4	US-09-539-413-18
10	892	98.3	172	4	US-09-539-413-2
11	890	98.1	172	4	US-09-539-413-2
12	889	98.0	172	4	US-09-539-413-19
13	888	97.9	172	4	US-09-539-413-9
14	888	97.9	172	4	US-09-539-413-20
15	887	97.8	172	4	US-09-539-413-4
16	886	97.7	172	4	US-09-539-413-5
17	886	97.7	172	4	US-09-539-413-10
18	884	97.5	172	4	US-09-539-411-6
19	882	97.2	172	4	US-09-539-413-8
20	861.5	95.0	196	4	US-09-487-792-12
21	861.5	95.0	196	4	US-09-908-594-12
22	872	80.2	195	4	US-09-922-11
23	727	80.2	195	4	US-09-908-594-11
24	613	67.6	172	1	US-08-138-751B-4
25	613	67.6	172	1	US-08-438-751B-44
26	613	67.6	172	1	US-08-443-893A-4
27	613	67.6	172	1	US-08-443-893A-44

#### ALIGNMENTS

RESULT 1  
US-08-438-753B-2  
/ Sequence 2, Application US/08438753B  
/ Patent No. 5705363

/ GENERAL INFORMATION:  
 / APPLICANT: Imakawa, Kazuhito  
 / TITLE OF INVENTION: Interferon Tau Compositions and  
 / Methods of Use  
 / NUMBER OF SEQUENCES: 44  
 / CORRESPONDENCE ADDRESS:  
 / ADDRESSEE: Dehlinger & Associates  
 / STREET: 350 Cambridge Ave., Suite 250  
 / CITY: Palo Alto  
 / STATE: CA  
 / COUNTRY: USA  
 / ZIP: 94306  
 / COMPUTER READABLE FORM:  
 / MEDIUM TYPE: Floppy disk  
 / COMPUTER: IBM PC compatible  
 / OPERATING SYSTEM: PC-DOS/MS-DOS  
 / SOFTWARE: Patient In Release #1.0, Version #1.25  
 / CURRENT APPLICATION DATA:  
 / APPLICATION NUMBER: US/08/438,753B  
 / FILING DATE: 10-MAY-1995  
 / CLASSIFICATION: 435  
 / PRIORITY APPLICATION DATA:  
 / APPLICATION NUMBER: US 08/139,891  
 / FILING DATE: 19-OCT-1993  
 / PRIORITY APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/847,741  
 / FILING DATE: 09-MAR-1992  
 / PRIORITY APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/318,050  
 / FILING DATE: 02-MAR-1989  
 / PRIORITY APPLICATION DATA:  
 / APPLICATION NUMBER: US 07/969,890  
 / FILING DATE: 30-OCT-1992  
 / ATTORNEY/AGENT INFORMATION:  
 / NAME: Sholtz, Charles K.  
 / REGISTRATION NUMBER: 38,615  
 / REFERENCE/DOCKET NUMBER: 5600-0001.30  
 / TELECOMMUNICATION INFORMATION:  
 / TELEPHONE: 415-324-0960  
 / INFORMATION FOR SEQ ID NO: 2:  
 / SEQUENCE CHARACTERISTICS:  
 / LENGTH: 172 amino acids  
 / TYPE: amino acid  
 / TOPOLogy: linear  
 / MOLECULE TYPE: protein  
 / APPLI

ORIGINAL SOURCE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifntau protein  
 US-08-438-753B-2

Query Match 99.1%; Score 899; DB 1; Length 172;  
 Best Local Similarity 98.8%; Freq. No. 1.6e-98;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLDRMNRNLSPHSCLQDRKFGLPQEMVEGDLQKQDQAFCVYEM 60  
 Db 1 CYLSRKMLDARENKLDRMNRNLSPHSCLQDRKFGLPQEMVEGDLQKQDQAFCVYEM 60

Qy 61 LQQSFLNLFYTHSSAAWDTTLLEQLCTGLCQOLDHLDTCRQVNGEEDSELGNMDPIVTV 120  
 Db 61 LQQSFLNLFYTHSSAAWDTTLLEQLCTGLCQOLDHLDTCRQVNGEEDSELGNMDPIVTV 120

Qy 121 KKYFQGTYDYLQEKGSYSDCAWEIVRMMEALTVSTTLQRKTRKGDDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSYSDCAWEIVRMMEALTVSTTLQRKTRKGDDLNSP 172

RESULT 2  
 Sequence 2, Application US/08443883A

GENERAL INFORMATION:  
 Patent No. 5738845

APPLICANT: Bazer, Fuller W.  
 APPLICANT: Johnson, Howard M.  
 APPLICANT: Pontzer, Carol H.  
 APPLICANT: Ott, Tracy L.  
 APPLICANT: Van Heek, Gino  
 APPLICANT: Imakawa, Kazuhito

TITLE OF INVENTION: Interferon Tau Compositions and  
 NUMBER OF SEQUENCES: 44

TITLE OF INVENTION: Interferon Tau Compositions and  
 NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC Compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patentn Release #1.0, Version #1.25  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/443,883A  
 FILING DATE:

CLASSIFICATION: 435  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/1139,891  
 FILING DATE: 19-OCT-1993  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/847,741  
 FILING DATE: 09-MAR-1992  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/318,050  
 FILING DATE: 02-MAR-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/969,890  
 FILING DATE: 30-OCT-1992  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Fabian, Gary R.  
 REGISTRATION NUMBER: 33,875  
 TELECOMMUNICATION INFORMATION:  
 REFERENCE/DOCKET NUMBER: 5600-0001.30  
 TELEPHONE: 415-324-0960  
 TELEFAX: 415-324-0960  
 INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein

ORIGINAL SOURCE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifntau protein  
 US-08-443-883A-2

Query Match 99.1%; Score 899; DB 1; Length 172;  
 Best Local Similarity 98.8%; Freq. No. 1.6e-98;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLDRMNRNLSPHSCLQDRKFGLPQEMVEGDLQKQDQAFCVYEM 60  
 Db 1 CYLSRKMLDARENKLDRMNRNLSPHSCLQDRKFGLPQEMVEGDLQKQDQAFCVYEM 60

Qy 61 LQQSFLNLFYTHSSAAWDTTLLEQLCTGLCQOLDHLDTCRQVNGEEDSELGNMDPIVTV 120  
 Db 61 LQQSFLNLFYTHSSAAWDTTLLEQLCTGLCQOLDHLDTCRQVNGEEDSELGNMDPIVTV 120

Qy 121 KKYFQGTYDYLQEKGSYSDCAWEIVRMMEALTVSTTLQRKTRKGDDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSYSDCAWEIVRMMEALTVSTTLQRKTRKGDDLNSP 172

RESULT 3  
 Sequence 2, Application US/08443883A

GENERAL INFORMATION:  
 US-08-631-328-2  
 Sequence 2, Application US/08443883A  
 Patent No. 5939286

GENERAL INFORMATION:  
 APPLICANT: Johnson, Howard M.  
 APPLICANT: Pontzer, Carol H.  
 APPLICANT: Subramanian, Prem S.  
 TITLE OF INVENTION: Hybrid Interferon Compositions and  
 NUMBER OF SEQUENCES: 55

CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Dellinger & Associates  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: Patentn Release #1.0, Version #1.25  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/08/631,328  
 FILING DATE: 12-APR-1996  
 CLASSIFICATION: 435  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/438,753  
 FILING DATE: 10-MAY-1995  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Sholtz, Charles K.  
 REGISTRATION NUMBER: 38,615  
 REFERENCE/DOCKET NUMBER: 5600-0001.34  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 415-324-0980  
 TELEX: 415-324-0980  
 INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein

ORIGINAL SOURCE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifntau protein  
 US-08-631-328-2

Page 3

SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifentau protein  
 US-08-455-021B-2

SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifentau protein  
 US-09-045-467-2

Query Match 99.1%; Score 899; DB 2; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 1.6e-98; DB 3; Length 172;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 Query 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDFGLPQBMVEDSOLQKDQAFPVLYEM 60  
 Db 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDFGLPQBMVEDSOLQKDQAFPVLYEM 60  
 Qy 61 IQQSENLFYTHESSAAWDTTLEBQCTGLQQLDHLTDTCRQVNGEEDSSELGNNDPIVY 120  
 Db 61 IQQSENLFYTHESSAAWDTTLEBQCTGLQQLDHLTDTCRQVNGEEDSSELGNNDPIVY 120  
 Qy 61 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172  
 Db 61 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172  
 Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172  
 Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172

RESULT 6

US-08-954-395A-18

Sequence 2, Application US/09045467

GENERAL INFORMATION:

APPLICANT: Johnson, Howard M.  
 PONZER, Carol H.

TITLE OF INVENTION: Interferon Tau Compositions and Methods of Use

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:

ADDRESSSEE: Dehlinger & Associates  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC Compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/045-467  
 FILING DATE: 20-Mar-1998  
 CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/455,021  
 FILING DATE: 31-MAY-1995  
 APPLICATION NUMBER: US 08/438,753  
 FILING DATE: 10-MAY-1995  
 APPLICATION NUMBER: US 08/1139,891  
 FILING DATE: 19-OCT-1993  
 APPLICATION NUMBER: US 07/847,741  
 FILING DATE: 09-MAR-1992  
 APPLICATION NUMBER: US 07/318,050  
 FILING DATE: 02-MAR-1989  
 APPLICATION NUMBER: US 07/969,890  
 FILING DATE: 30-OCT-1992

ATTORNEY/AGENT INFORMATION:

NAME: Dehlinger, Peter J.  
 REGISTRATION NUMBER: 28,006  
 REFERENCE/DOCKET NUMBER: 5600-0001.36  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0960  
 INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:

LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE:  
 INDIVIDUAL ISOLATE: amino acid sequence of a mature  
 INDIVIDUAL ISOLATE: Ovifentau protein  
 US-09-045-467-2

Query Match 99.1%; Score 899; DB 3; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 1.6e-98; DB 4; Length 172;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 Query 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDFGLPQBMVEDSOLQKDQAFPVLYEM 60  
 Db 1 CYLSRKMLDARENKLDRMNRLSPHSCLQDRKDFGLPQBMVEDSOLQKDQAFPVLYEM 60  
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 Db 61 LOQSFNLFYTHESSAAWDTTLEBQCTGLQQLDHLTDTCRQVNGEEDSSELGNNDPIVY 120  
 Qy 61 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172  
 Db 61 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRLLTRMGGLDLSNP 172

RESULT 7

US-08-954-395A-18

Sequence 18, Application US/08954395A

Patent No. 6204022

GENERAL INFORMATION:

APPLICANT: Johnson, Howard M.  
 SUBRAMANIAN, Pram S.  
 PONTZER, Carol H.  
 VILLARETE, Lorelie H.  
 CAMPUS, Jacqueline  
 CHUNG, Albert D.  
 LIU, Wayne W.  
 LIU, Philip T.  
 APPLICANT: Liu, Philip T.  
 APPLICANT: Liu, Philip T.

TITLE OF INVENTION: LOW-TOXICITY HUMAN INTERFERON-ALPHA

NUMBER OF SEQUENCES: 35

CORRESPONDENCE ADDRESS:

ADDRESSEE: Dehlinger & Associates LLP  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

COMPUTER: IBM Compatible

OPERATING SYSTEM: DOS

SOFTWARE: FastSEQ for Windows Version 2.0

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/954,395A  
 FILING DATE: Filed Herewith  
 CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/631,328  
 FILING DATE: 12-APR-1996  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Dehlinger, Peter J.  
 REGISTRATION NUMBER: 27008  
 REFERENCE/DOCKET NUMBER: 5600-0001.35  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0960  
 INFORMATION FOR SEQ ID NO: 18:  
 SEQUENCE CHARACTERISTICS:

LENGTH: 172 amino acids  
 STRANDEDNESS: single  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 IMMEDIATE SOURCE:  
 LIBRARY: GenBank Accession: Y00287, PID 91358  
 CLONE: Ovine IFN-tau, mature protein  
 US-08-954-395A-18

Query Match 99.1%; Score 899; DB 3; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 1.6e-98;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDMRNLSPHSCLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLIDMRNLSPHSCLQRKDGLPQEMVEGDLQKQAFPVLYEM 60

Qy 61 LQSQSNLFYEHSSAAWDTLLEQIQLTGLQVGMGEEDSELGNMDPIVTY 120  
 Db 61 LQSQSNLFYEHSSAAWDTLLEQIQLTGLQVGMGEEDSELGNMDPIVTY 120

Qy 121 KKYFQGTYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRRLTKNGGDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRRLTKNGGDLNSP 172

---

RESULT 9  
 US-08-599-413-18  
 ; Sequence 18, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H.  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; PRIORITY APPLICATION NUMBER: 2000-06-22  
 ; PRIORITY FILING DATE: 2000-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: Patentin Ver. 2.1  
 ; SEQ ID NO: 18  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-08-599-413-18

Query Match 98.6%; Score 894; DB 4; Length 172;  
 Best Local Similarity 98.3%; Pred. No. 6.2e-98;  
 Matches 169; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDMRNLSPHSCLQRKDGLPQEMVEGDLQKQAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLIDMRNLSPHSCLQRKDGLPQEMVEGDLQKQAFPVLYEM 60

Qy 61 LQSQSNLFYEHSSAAWDTLLEQIQLTGLQVGMGEEDSELGNMDPIVTY 120  
 Db 61 LQSQSNLFYEHSSAAWDTLLEQIQLTGLQVGMGEEDSELGNMDPIVTY 120

Qy 121 KKYFQGTYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRRLTKNGGDLNSP 172  
 Db 121 KKYFQGTYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRRLTKNGGDLNSP 172

---

RESULT 10  
 US-08-599-413-2  
 ; Sequence 2, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H.  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; PRIORITY APPLICATION NUMBER: 2000-06-22  
 ; PRIORITY FILING DATE: 2000-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: Patentin Ver. 2.1  
 ; SEQ ID NO: 2  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 ; US-08-599-413-2

Query Match 99.1%; Score 899; DB 3; Length 172;  
 Query Match

Query Match 98.3%; Score 892; DB 4; Length 172;  
 Best Local Similarity 98.3%; Fred. No. 1.1e-97;  
 Matches 169; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60

Qy 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120  
 Db 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120

Qy 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172  
 Db 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172

RESULT 11  
 US-0599-413-7  
 ; Sequence 7, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 7  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 US-09-599-413-7

Query Match 98.1%; Score 890; DB 4; Length 172;  
 Best Local Similarity 97.7%; Fred. No. 1.8e-97;  
 Matches 168; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60

Qy 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120  
 Db 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120

Qy 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172  
 Db 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172

RESULT 12  
 US-05-599-413-19  
 ; Sequence 19, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 19  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 US-09-599-413-19

Query Match 98.0%; Score 889; DB 4; Length 172;  
 Best Local Similarity 98.3%; Pred. No. 2.1e-97;  
 Matches 169; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60

Qy 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120  
 Db 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120

Qy 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172  
 Db 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172

RESULT 13  
 US-09-599-413-9  
 ; Sequence 9, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 9  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 US-09-599-413-9

Query Match 97.9%; Score 888; DB 4; Length 172;  
 Best Local Similarity 97.7%; Pred. No. 3.2e-97;  
 Matches 168; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60  
 Db 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQRKDFFGLPQBMVEGDLQQLDQAPVLYEM 60

Qy 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120  
 Db 61 LQQSFNLFTYEHSSAAWDTTLLEOLCTGLQQLDHLDTCRGQNGEEDSELGNMDPIVV 120

Qy 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172  
 Db 121 KKYFQIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQKRLTKMGDLNSP 172

RESULT 14  
 US-09-599-413-20  
 ; Sequence 20, Application US/09599413  
 ; Patent No. 6833256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO: 20  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 US-09-599-413-20

US-09-599-413-20

Query Match 97.9%; Score 888; DB 4; Length 172;  
 Best Local Similarity 97.7%; Pred. No. 3 2e-97;  
 Matches 168; Conservative 2; Mismatches 2; Indels 0; Gaps 0;  
 Seq ID No 4

Qy 1 CYLSERMLDAEENLKLDRMNRSLSPHSCLQDRKDGLPQEMVEGDLQKQDQAFPVLYEM 60  
 Db 1 CYLSRMLDAEENLKLDRMNRSLSPHSCLQDRKDGLPQEMVEGDLQKQDQAFPVLYEM 60

Qy 61 LQOSNFLFYTTESSAAMDTTILEQLCIGLQOQLDHDLTCTRCQVMGEEDSEIGNMDPIVTYV 120  
 Db 61 LQOSNFLFYTTESSAAMDTTILEQLCIGLQOQLDHDLTCTRCQVMGEEDSEIGNMDPIVTYV 120

Qy 121 KKYFQGIYDYLOEKGYDCAWEIVRVEMMRALTVSTTLQRKLTKMGCDLNNSP 172  
 Db 121 KKYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGCDLNNSP 172

RESULT 15

US-09-599-413-4

; Sequence 4, Application US/09599413  
 ; Patent No. 6813256  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Pontzer, Carol H  
 ; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
 ; FILE REFERENCE: interferon tau  
 ; CURRENT APPLICATION NUMBER: US/09/599,413  
 ; CURRENT FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/140,411  
 ; PRIOR FILING DATE: 1999-06-22  
 ; NUMBER OF SEQ ID NOS: 20  
 ; SOFTWARE: PatentIn Ver. 2.1  
 ; SEQ ID NO 4  
 ; LENGTH: 172  
 ; TYPE: PRT  
 ; ORGANISM: ovine  
 US-09-599-413-4

Query Match 97.8%; Score 887; DB 4; Length 172;

Best Local Similarity 97.7%; Pred. No. 4 2e-97;  
 Matches 168; Conservative 1; Mismatches 3; Indels 0; Gaps 0;  
 Seq ID No 4

Qy 1 CYLSERMLDAEENLKLDRMNRSLSPHSCLQDRKDGLPQEMVEGDLQKQDQAFPVLYEM 60  
 Db 1 CYLSRMLDAEENLKLDRMNRSLSPHSCLQDRKDGLPQEMVEGDLQKQDQAFPVLYEM 60

Qy 61 LQOSNFLFYTTESSAAMDTTILEQLCIGLQOQLDHDLTCTRCQVMGEEDSEIGNMDPIVTYV 120  
 Db 61 LQOSNFLFYTTESSAAMDTTILEQLCIGLQOQLDHDLTCTRCQVMGEEDSEIGNMDPIVTYV 120

Qy 121 KKYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGCDLNNSP 172  
 Db 121 KKYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGCDLNNSP 172

Search completed: October 28, 2005. 15:01:48  
 Job time : 25.5 secs

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GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:48:06 ; Search time 121 Seconds  
(without alignments)  
549.775 Million cell updates/sec

Title: US-10-719-472-2  
Perfect score: 907  
Sequence: 1 CYLSRKMLDARENKLKDR. .... TVSTTLQKRLLTKMGGDINSP 172

Scoring table: BLOSUM62  
Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

## Database :

- A\_Geneseq\_16Dec04:\*
- 1: GeneseqP1980s:\*
- 2: GeneseqP1990s:\*
- 3: GeneseqP2000s:\*
- 4: GeneseqP2001s:\*
- 5: GeneseqP2002s:\*
- 6: GeneseqP2003as:\*
- 7: GeneseqP2003bs:\*
- 8: GeneseqP2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	907	100.0	172	2 AAR54768	Aar54768 Sheep int
2	907	100.0	172	2 AAR99397	Aar99397 Ovine tau
3	907	100.0	172	2 AAW31638	AAw31638 Mature ovine
4	907	100.0	172	5 ABB07588	Abb07588 Ovine int
5	907	100.0	172	5 ADI17857	Adi17857 Mature ovine
6	907	100.0	172	7 ADM79177	Adm79177 Mature ovine
7	907	100.0	172	8 ADS13613	Ads13613 Sheep int
8	907	100.0	172	8 AAR04540	Aar04540 Ovine troponin
9	907	100.0	195	2 AAR09294	Aar09294 Ovine troponin
10	905	99.8	172	2 ADM79195	Adm79195 Interferon
11	905	99.8	172	8 AAR24942	Aar24942 Sequence
12	904	99.7	195	2 AAB31457	Aab31457 Amino acid sequence
13	900	99.2	172	4 AAB31457	Aab31457 Ovine int
14	900	99.2	172	5 AAO21461	Aao21461 Ovine int
15	899	99.1	172	5 ABB07589	Abb07589 Recombinant
16	899	99.1	172	8 ADR79178	Adr79178 Mature ovine
17	899	99.1	172	8 ADS13614	Ads13614 Recombinant
18	898	99.0	172	4 AAB31462	Aab31462 An ovine
19	897	98.9	195	2 AAR24941	Aar24941 Sequence
20	897	98.9	195	2 AAR24945	Aar24945 Sequence
21	896	98.8	172	4 AAB31468	Aab31468 An ovine
22	896	98.8	172	4 AAB31466	Aab31466 An ovine
23	896	98.8	172	4 AAB31464	Aab31464 An ovine
24	895	98.7	172	4 AAB31459	Aab31459 An ovine
25	894	98.6	172	4 AAB31465	Aab31465 An ovine

## ALIGNMENTS

## RESULT 1

ID	AAR54768	standard; protein; 172 AA.
XX		
AC	AAR54768;	
XX		
DT	25-MAR-2003 (revised)	
DT	01-DEC-1994 (first entry)	
XX		
DE	Sheep interferon-tau mature protein.	
XX		
KW	Sheep; interferon-tau; immunostimulant; antitumor; virucide.	
XX		
Ovis aries.		
XX		
PN	W09410313-A2.	
XX		
PD	11-MAY-1994.	
XX		
PP	19-OCT-1993; 93WO-US010016.	
XX		
PR	30-OCT-1992; 92US-00969890.	
XX		
(UYFL)	UNIV FLORIDA.	
PA	(WOMB) WOMEN'S RES INST.	
XX		
PJ	Bazer FW, Johnson HM, Pontzer CH, Ott TL, Van Heeke G, Imakawa K;	
XX		
DR	WPI; 1994-167468/20.	
DR	N-PSB; AAQ64824.	
XX		
PR	Interferon tau compensates for lacking cytotoxic side effects when used as anti-cellular proliferation agents.	
XX		
PS	Claim 3; Page 90; 126pp; English.	
XX		
CC	This sheep IFN-tau protein is expressed in yeast, insect cells or E. coli using expression vector phage lambda-gal1. The protein is useful for inhibiting viral replication in cells and enhancing fertility in female mammals. (Updated on 25-MAR-2003 to correct PN field.)	
CC		
XX		
SQ	Sequence 172 AA;	
Query Match	100.0%; Score 907; DB 2; Length 172;	
Best Local Similarity	100.0%; Pred. No. 1e-92;	
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;		

Y	1 CYLSRKLMILDARENKLKIDMRNRLSPHSCLQDRKDGLPQEMVEGDDQQLDQAPFVLYEM 60 1 CYLSRKLMILDARENKLKIDMRNRLSPHSCLQDRKDGLPQEMVEGDDQQLDQAPFVLYEM 60	RESULT 3 AAW31698 standard; protein; 172 AA. XX XX AC XX DT 14-APR-1998 (first entry) XX DE Mature ovine interferon-tau (OvIFNTau) protein. XX KW Interferon-tau; ovine; human; auto immune disease; treatment; toxicity; KW IFN tau; multiple sclerosis; diabetes mellitus; asthma; allergy; cancer. XX OS Ovis aries. XX PN WO9733607-A1. XX PD 18-SEP-1997. XX PF 12-MAR-1997; 97WO-US003794. XX PR 15-MAR-1996; 96US-00616904. XX PA (UYFL ) UNIV FLORIDA. PI Soos JM, Schiffenbauer J, Johnson HM; XX WPI; 1997-470642/43. DR N-PSDB; AAV02288. XX PT Oral administration of interferon-tau for treatment of auto-immune PT disease - avoids toxicity of interferon alpha and generates fewer PT specific antibodies than injection. XX PS Claim 5; Page 31; 48pp; English. XX CC This is a mature ovine interferon-tau (OvIFNTau) protein. The ovine and CC the human interferon-tau (IFN tau) can be used in the treatment of CC mammalian diseases responsive to IFN tau. The new feature in the CC treatment is that IFN tau is administered orally. The method is used to CC treat immune, particularly autoimmune disease, specifically multiple CC sclerosis (a preferred application, reducing both severity and frequency CC of relapses), type I diabetes mellitus, lupus erythematosus, amyotrophic CC lateral sclerosis, Crohn's disease, rheumatoid arthritis, stomatitis, CC asthma, allergies and psoriasis, particularly in humans or dogs. IFN tau CC is also useful for treating cancer (e.g. hairy cell leukemia), Kapoor's CC sarcoma and multiple myeloma), cell proliferation and viral diseases CC (hepatitis, human immunodeficiency virus etc., including prevention of CC maternal transmission). It is also used for increasing fertility in CC female mammals (increasing life time of the corpus luteum). Oral CC administration is as effective as injection but is more convenient and CC generates a lower level of anti-IFN tau antibodies. Use of IFN tau avoids CC the toxicity associated with use of IFN alpha XX SQ Sequence 172 AA;
Y	61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120 61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120	Query Match 100.0%; Score 907; DB 2; Length 172; Best Local Similarity 100.0%; Pred. No. 1e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0; MisMatches 0; Indels 0; Gaps 0;
Y	61 KKYFOGIYDYLQEKGYSDCWEIVRVENMRALTVSTTLQKRLTMGGLDNLNSP 172 61 KKYFOGIYDYLQEKGYSDCWEIVRVENMRALTVSTTLQKRLTMGGLDNLNSP 172	1 CYLSRKLMILDARENKLKIDMRNRLSPHSCLQDRKDGLPQEMVEGDDQQLDQAPFVLYEM 60 1 CYLSRKLMILDARENKLKIDMRNRLSPHSCLQDRKDGLPQEMVEGDDQQLDQAPFVLYEM 60
Y	61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120 61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120	61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120 61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120
Y	121 KKYFOGIYDYLQEKGYSDCWEIVRVENMRALTVSTTLQKRLTMGGLDNLNSP 172 121 KKYFOGIYDYLQEKGYSDCWEIVRVENMRALTVSTTLQKRLTMGGLDNLNSP 172	61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120 61 LQSQSNLFTEHSSAAWDTLLEBOLCTGQQQLDHDTCRGQVNGEEDSELGNMDPITVV 120

RESULT 4 AAW44110 ID AAW44110 standard;	protein; 172 AA.	Qy 121 KKYFGQIYDYLQEKGYSDCWEIVVEMMRALTVSTTLQKRBLTKMGGLNSP 172 Db 121 KKYFGQIYDYLQEKGYSDCWEIVVEMMRALTVSTTLQKRBLTKMGGLNSP 172
XX		RESULT 5 ABB07588
AC AAW44110;		ID ABB07588 Standard; protein; 172 AA.
XX DT 16-JUN-1998 (first entry)		XX ABB07588; AC XX DE XX XX Hybrid; fusion; interferon-tau; inhibit; tumour; viral growth; IFNT; KW autoimmune disease; immune response. XX Ovis aries. XX PN WO9739127-A1. XX PD 23-OCT-1997. XX PP 11-APR-1997; 97WO-US006114. XX PR 12-APR-1996; 96US-00631328. XX PA (UYFL ) UNIV FLORIDA. XX PI Johnson HM, Subramaniam PS, Pontzer CH; XX DR WPI; 1997-526463/48. XX DR N-PSDB; AAV02178. XX PT Hybrid nucleic acid encodes fusion of interferon-tau and other interferon used to inhibit tumour and viral growth, and for treating auto-immune disease, less toxic than native type I interferon. XX Disclosure; Page 83; 147pp; English.
CC The present sequence represents mature ovine interferon tau from the present invention. The present invention describes a novel chimeric nucleic acid which comprises: (i) a 5'-segment encoding the N-terminal amino acid (aa) sequence of an interferon tau (IFNT) polypeptide; and (ii) a 3'-sequence encoding the C-terminal aa sequence of a non-tau type I interferon, with the two segments spliced in a region comprising part of the mature interferon between residues 8 and 37. Hybrid interferon fusion polypeptides are used to inhibit tumour growth (e.g. of steroid- sensitive tumours) and viral replication (e.g. of human immunodeficiency virus, hepatitis B or C virus, feline leukaemia virus) and to treat autoimmune diseases (e.g. lupus erythematosus, type I diabetes, rheumatoid arthritis). Some hybrid interferon fusion polypeptides may block the antiviral/antiproliferative actions of IFNT, so can be used to prevent immune responses induced by interferons, e.g. in organ transplantation. The hybrid interferon fusion polypeptides can also be used to raise antibodies, used e.g. for analysis of structure/function relationships. The novel chimeric nucleic acid is used to produce recombinant hybrid interferon fusion polypeptides. Hybrid interferon fusion polypeptides are less toxic than type I interferons, so can be administered at higher doses XX Sequence 172 AA;	Qy 100.0%; Score 907; DB 2; Length 172; Best Local Similarity 100.0%; Pred. No. 1e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0;	Qy 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60 Db 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60
SQ		Qy 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60 Db 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60
Query Match 100.0%; Score 907; DB 2; Length 172; Best Local Similarity 100.0%; Pred. No. 1e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0;	Qy 61 LQQSEPNLFYTHESSAAWDTLLEBQLCTGIGLQQQLDHDTCRQVNGEDESDSLLGNDMDPITYV 120 Db 61 LQQSEPNLFYTHESSAAWDTLLEBQLCTGIGLQQQLDHDTCRQVNGEDESDSLLGNDMDPITYV 120	
SQ Sequence 172 AA;	Qy 61 LQQSEPNLFYTHESSAAWDTLLEBQLCTGIGLQQQLDHDTCRQVNGEDESDSLLGNDMDPITYV 120 Db 61 LQQSEPNLFYTHESSAAWDTLLEBQLCTGIGLQQQLDHDTCRQVNGEDESDSLLGNDMDPITYV 120	
Query Match 100.0%; Score 907; DB 5; Length 172; Best Local Similarity 100.0%; Pred. No. 1e-92; Mismatches 0; Indels 0; Gaps 0; Matches 172; Conservative 0;	Qy 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60 Db 1 CYLSRKMLDARENILKILDRMNRISPHSCIQDRKDFFGLOPMVEGDLQKDOAPPVLYEM 60	

RESULT 6		1 CYLSRKMLDARENILKLLDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQLDKQAFPVLYEM 60
ADI17857	Qy	61 LQQSENLFYEHSSAAMDTTLEQLCCTGQQLDHLDTGQNGEEDSFLGNMDPVTY 120
ID ADI17857 standard; protein; 172 AA.	Db	61 LQQSENLFYEHSSAAMDTTLEQLCCTGQQLDHLDTGQNGEEDSFLGNMDPVTY 120
XX		
AC ADI17857;	Qy	121 KKYFGQIYDYLQEQGYSDCWEIVRVMNRALTYSTTLQKRLTKNGDINSP 172
XX	Db	121 KKYFGQIYDYLQEQGYSDCWEIVRVMNRALTYSTTLQKRLTKNGDINSP 172
DT 22-APR-2004 (first entry)		
XX		
DB Mature ovine interferon-tau, SEQ ID NO:2.		
XX		RESULT 7
KW Interferon-tau; oral dosage form; oral administration; fasted state;		ADM/9177
KW 2',5'-oligoadenylate synthetase; OAS; autoimmune condition;		ADM/9177 standard; protein; 172 AA.
KW multiple sclerosis; diabetes mellitus; Hashimoto's thyroiditis;		XX
KW rheumatoid arthritis; psoriasis; systemic lupus erythematosus;		AC ADM/9177;
KW allergy; asthma; eczema; Crohn's disease; ulcerative colitis;		XX
KW viral infection; HIV infection; hepatitis;		DT 15-JUL-2004 (first entry)
KW cellular proliferation disorder; multiple myeloma; ovarian cancer;		XX
KW hairy cell leukaemia; inflammatory disease; immunosuppressive; virucide;		DE Mature ovine interferon tau protein SEQ ID NO:1.
KW cytostatic; antiinflammatory; neuroprotective; antidiabetic;		XX
KW thymometric; antirheumatic; antierritic; ophthalmological;		KW oral administration; interferon; IFN; ovine; mature interferon tau.
KW anti-psoriatic; dermatological; antiasthmatic; antiulcer;		XX
KW anti-HIV; hepatotropic; vaccine; ovine; sheep.		Ovis aries.
XX		OS XX
OS Synthetic.		PN WO2004032863-A2.
XX		PD 22-APR-2004.
PN WO2003061728-A2.		XX
XX		PF 08-OCT-2003; 2003WO-US031999.
PD 31-JUL-2003.		XX
XX		PR 09-OCT-2002; 2002US-0417292P.
PF 16-JAN-2003; 2003WO-US001596.		XX
XX		(PEPG-) PEPGEN CORP.
PR 16-JAN-2002; 2002US-0349658P.		XX
XX		Manning MC, Nayar R;
PA (PEPG-) PEPGEN CORP.		XX
XX		DR WPI; 2004-340799/31.
PI Sokawa Y, Liu C;		XX
XX		PT A composition for oral administration of an interferon (IFN) comprises an
DR WPI; 2003-598711/56.		PT IFN and a species that stabilizes the IFN in an active form by
DR N-PSDB; ADI17856.		PT interaction between the interferon and the species.
XX		XX Example; SEQ ID NO 1; 52pp; English.
PT An oral dosage form of interferon-tau administered to a subject in a		XX
PT fasted state to achieve an increased level of 2',5'-oligoadenylate		CC The present invention describes a composition for the oral administration
PT synthetase, useful for treating a condition responsive to interferon-tau,		CC of an interferon (IFN) comprising an IFN and a species that stabilizes
PT e.g. viral infection.		CC the IFN in an active form by interaction between the IFN and the species.
XX		CC Also described: (1) preparing a protein for oral administration,
PS Claim 3; SEQ ID NO 2; 28pp; English.		CC comprising formulating the protein with a species that stabilizes the
XX		CC protein in an active form by binding interaction between the protein and
CC the species, therefore the formulating results in a composition for oral		CC administration; and (2) selecting a dosage form composition for a protein
CC administration; and (2) selecting a dosage form composition for a protein		CC that achieves protein stabilisation for biological activity upon in vivo
CC administration, comprising selecting a protein for formulation, preparing		CC administration, comprising selecting a protein or polypeptide in different
CC solutions of the selected protein or polypeptide in different buffers at		CC different pH values, and measuring the effect of the buffer on the
CC protein's tertiary structure, where the measuring identifies buffers that		CC achieve the effect of the buffer on the protein's tertiary structure. The composition and
CC result retention of the protein's tertiary structure. The composition and		CC methods are useful for preparing oral dosage forms for administration of
CC proteins and polypeptides. The present sequence represents the mature		CC proteins and polypeptides. The present sequence represents the mature
CC ovine interferon tau amino acid sequence, which is used in an example		CC ovine interferon tau amino acid sequence, which is used in an example
CC from the present invention.		CC from the present invention.
XX		XX Sequence 172 AA;
SQ Sequence 172 AA;		SQ Sequence 172 AA;
Query Match	100.0%	Score 907; DB 7; Length 172;
Best Local Similarity	100.0%	Pred. No. 1e-92;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;		Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 CYLSRKMLDARENILKLLDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQLDKQAPPVLYEM 60		1 CYLSRKMLDARENILKLLDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQLDKQAPPVLYEM 60
Db 1 CYLSRKMLDARENILKLLDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQLDKQAPPVLYEM 60		1 CYLSRKMLDARENILKLLDRMNRLSPHSCLQDRKDFFGLPQEMVEGDLQLDKQAPPVLYEM 60

Qy	61	LOQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVT	120	Best Local Similarity 100.0%; Pred. No. 1e-92; Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Db	61	LQQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVT	120	1 CYLSRKLMQDARENKLIDMNRSLSPHSCLQDRKDFGLPQMVEGDBLQQLDQAFPVLYEM 60
Qy	121	KKYFGQIYDYLQEKGSDCANEIVR VEMMRALT VSTTLLQKRLT KMG DLSNP	172	1 CYLSRKLMQDARENKLIDMNRSLSPHSCLQDRKDFGLPQMVEGDBLQQLDQAFPVLYEM 60
Db	121	KKYFGQIYDYLQEKGSDCANEIVR VEMMRALT VSTTLLQKRLT KMG DLSNP	172	61 LQQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVT 120
RESULT 8				61 LQQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVT 120
ADS13613	ADS13613	standard; protein; 172 AA.		Qy 121 KKYFGQIYDYLQEKGSDCANEIVR VEMMRALT VSTTLLQKRLT KMG DLSNP 172
ID	ADS13613			Db 121 KKYFGQIYDYLQEKGSDCANEIVR VEMMRALT VSTTLLQKRLT KMG DLSNP 172
AC	ADS13613;			
XX	16-DEC-2004	(First entry)		
DT	XX			RESULT 9
DE	Sheep interferon tau seqid 2.			AAR04540 standard; protein; 195 AA.
XX				ID AAR04540
XX				XX AAR04540;
KW	immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic;			AC AAR04540;
KW	muscular; antiinflammatory; antiarthritic; antiasthmatic;			XX 25-MAR-2003 (revised)
KW	dermatologic; vaccine; interferon tau; 2',5'-oligoadenylate synthetase;			DT 17-SEP-1990 (first entry)
KW	OAS; autoimmune condition; cancer; viral infection; multiple sclerosis;			DE Ovine trophoblast protein-1 (otrp-1).
KW	hepatitis C infection; diabetes mellitus; systemic lupus erythematosus;			XX Bovine trophoblast protein-1; btp-1; fertility; ds.
KW	amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis;			XX Sus scrofa.
KW	asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.			XX EP367063-A.
XX	Ovis aries.			XX PD 09-MAY-1990.
OS				XX PF 23-OCT-1989;
PN	US2004191217-A1.			XX PR 26-OCT-1988;
PD				XX PA (UMOR ) UNIV MISSOURI.
XX	30-SEP-2004.			FI Roberts MR, Imakawa K;
XX	21-NOV-2003; 2003US-00719472.			XX DR 1990-141062/19.
PP				DR N-PSDB; AAQ04289.
XX	19-JUL-2000; 2000US-0219128P.			XX PT Recombinant bovine trophoblast protein-1 - used for enhancing fertility or treating viral diseases in mammal, esp. cattle.
PR				XX Disclosure; Page ?; 27pp; English.
PR	19-JUL-2001; 2001US-00910406.			XX The btp-1 produced from the gene may be used to promote fertility or treat viral disease in cattle. The gene may also be used to provide transgenic animals with enhanced fertility, or in prophylactic and therapeutic treatment of other mammals. (Updated on 25-MAR-2003 to correct PA field.)
PR	16-JAN-2002; 2002US-0349658P.			XX Sequence 195 AA;
PR	16-JAN-2003; 2003US-00346569.			Query Match 100.0%; Score 907; DB 2; Length 195;
PR	31-OCT-2003; 2003US-00698927.			Best Local Similarity 100.0%; Pred. No. 1.2e-92; Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
XX	(SOKA/ ) SOKAWA Y.			1 CYLSRKLMQDARENKLIDMNRSLSPHSCLQDRKDFGLPQMVEGDBLQQLDQAFPVLYEM 60
PA	(LIUC/ ) LIU C.			24 CYLSRKLMQDARENKLIDMNRSLSPHSCLQDRKDFGLPQMVEGDBLQQLDQAFPVLYEM 83
PA	SOKAWA Y., Liu C;			61 LQQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVTY 120
XX	PT WPI; 2004-698654/68.			84 LQQSFLPYTEHSSAAMD TLLBQLCTGLQQQLDHLTCRQVMGEBDSEIGNMDPIVTY 143
DR	N-PSDB; ABS13612.			Qy 121 KKYFGQIYDYLQEKGSDCANEIVR VEMMRALT VSTTLLQKRLT KMG DLSNP 172
XX	Treating a condition in a subject, e.g. autoimmune condition, cancer or viral infection, comprises orally administering interferon-tau to the intestinal tract to increase the blood 2',5'-oligoadenylate synthetase level.			
PT				
PT	Treating a condition in a subject, e.g. autoimmune condition, cancer or			
PT	subject responsive to interferon-tau therapy comprises orally administering interferon-tau to the intestinal tract of the subject to produce an initial measurable increase in the subject's blood 2',5'-oligoadenylate synthetase (OAS) level, relative to the blood OAS level in the subject in the absence of interferon-tau administration. The method is useful for treating an autoimmune condition, cancer, or a viral infection. The method is particularly useful for treating multiple sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.			
XX	Sequence 172 AA;			
CC	The invention describes a method of treating a condition in a human subject responsive to interferon-tau therapy comprising orally administering interferon-tau to the intestinal tract of the subject to produce an initial measurable increase in the subject's blood 2',5'-oligoadenylate synthetase (OAS) level, relative to the blood OAS level in the subject in the absence of interferon-tau administration. The method is useful for treating an autoimmune condition, cancer, or a viral infection. The method is particularly useful for treating multiple sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.			
CC	This is the amino acid sequence of ovine interferon-tau.			
CC	Sequence 172 AA;			
Query Match	100.0%; Score 907; DB 8; Length 172;			

Page 6

Interferon-tau; IFN-tau; cancer; tumour growth; viral disease; autoimmune disease; multiple sclerosis; adenocarcinoma; breast cancer; prostate cancer; glioblastoma; melanoma; myeloma; lymphoma; leukaemia; lung cancer; skin cancer; bladder cancer; kidney cancer; brain cancer; ovarian cancer; pancreatic cancer; cervical cancer; uterine cancer; bone cancer; colorectal cancer; cervical cancer; neuroectodermal cancer; psoriasis; monoclonal gammopathy; dysplasia; diabetes mellitus; rheumatoid arthritis; lupus erythematosus.

Ovis sp.

WO2000078266-A2.

28-DEC-2000.

22-JUN-2000; 20000WO-1B001080.

22-JUN-1999; 99US-0140411P.

(UTMWA-) UNIV MARYLAND BALTIMORE.

Pontzer CH, Shorts LH, Clark CD;

WPI; 2001-071357/08.

N-PSDB; AAF24827.

Producing recombinant interferon tau analog proteins with improved properties, useful for treating cancers, autoimmune diseases and viral infections.

Claim 5: Page 59-60; 70PP; English.

The present sequence represents an ovine interferon-tau 1mrod polypeptide. The specification describes a method of making recombinant interferon (IFN)-tau proteins, which differ from wild-type IFN-tau by one amino acid substitution near the amino terminus of the molecule. The mutated IFN-tau proteins have improved biological activity, low toxicity, retain the same or slightly reduced antiviral activity compared with interferon alpha, and have enhanced antiproliferative activity compared to wild-type IFN-tau. The method is used for producing IFN-tau proteins with improved biological activities and properties. These IFN-tau may be administered to treat cancers and decrease tumour growth, treat viral diseases, treat autoimmune diseases and treat multiple sclerosis. The cancer or tumour group comprising human adenocarcinoma, breast cancer, prostate cancer, glioblastomas, melanomas, myelomas, lymphomas, leukaemia, lung cancer, skin cancer, bladder cancer, kidney cancer, bronchogenic carcinoma, ovarian cancer, pancreatic cancer, uterine cancer, bone cancer, colorectal cancer, cervical cancer and neuroectodermal cancer, monoclonal gammopathies and cervical and oral dysplasia. The autoimmune disease is selected from Type I diabetes mellitus, rheumatoid arthritis, lupus erythematosus and/or psoriasis. The viral infection is an RNA virus, a human immunodeficiency virus (HIV) or hepatitis C virus

Sequence 172 AA;

Jury Match	Score	DB	Length
1	99.2%	4	172
2	99.4%	Pred. No. 6	3e-92;
3	Conservative	Mismatches	0; Indels 1;
4			Gaps

```

1 CYLSRKMLDARENLKLLDRMRRLSPHSCLQDRKDQFGLPQEVMYEGDOLQKDQAFVLYEM
1 CYLSRKMLDARENLKLLDRMRRLSPHSCLQDRKDQFGLPQEVMYEGDOLQKDQAFVLYEM
61 LQSQSNLFLYTHSSAAWDTTLLEQLQCTGQOOLDHLDTCTRGQYNGEEDSELGMNDPIVTY
61 LQSQSNLFLYTHSSAAWDTTLLEQLQCTGQOOLDHLDTCTRGQYNGEEDSELGMNDPIVTY
121 KKYFGQIYDYLQEKGYSDCANEVVRVEMMRAALTVSTLQKRLTQMGDLNSP 172
121 KKYFGQIYDYLQEKGYSDCANEVVRVEMMRAALTVSTLQKRLTQMGDLNSP 172

```

RESULT 14  
 AAO21461 standard; protein; 172 AA.  
 XX DT 15-AUG-2002 (first entry)  
 XX Ovine interferon-tau (OvIFN-tau) protein.  
 XX Artificial ovine interferon-tau; OvIFN-tau; optimising; biased codon;  
 XX KW high yield production.  
 XX OS Ovis aries.  
 OS Synthetic.  
 XX PN WO200231178-A1.  
 XX PD 18-APR-2012.  
 XX PF 12-OCT-2001; 2001WO-US031862.  
 XX PR 12-OCT-2000; 2000US-0239746P.  
 PA (UABR-) UAB RES FOUND.  
 PI Krishna R, Rodriguez E, Johnson H,  
 DR WPI; 2002-426289/45.  
 DR N-PSDB; APL38060.  
 XX PT New artificial ovine interferon-tau gene, useful for high protein  
 PT production, constructed by reducing repetitive and palindromic sequences,  
 PT lowering overall guanine and cytosine content and optimizing gene  
 PT sequence.  
 PS Disclosure; Fig 1A; 71pp; English.  
 XX The invention relates to an artificial ovine interferon-tau (OvIFN-tau)  
 CC gene designed for high yield protein production in yeast, and constructed  
 CC by reducing repetitive sequences, lowering overall G+C content, reducing  
 CC or eliminating palindromic sequences, and optimising the sequence of  
 CC OvIFN-tau, using the biased codon usage in the yeast. The expression  
 CC vector for the invention is useful for high yield production of OvIFN-tau  
 CC in the yeast of Pichia, preferably P. pastoris X33 or P. pastoris GS115,  
 CC by transforming the yeast with the expression vector, inducing protein  
 CC expression with methanol, culturing the yeast in defined culture  
 CC conditions such as shake flask or fermenter, and purifying the protein  
 CC from culture media. This sequence represents the ovine interferon-tau  
 CC (OvIFN-tau) protein of the invention.  
 XX Sequence 172 AA;

Query Match 99.2%; Score 900; DB 5; Length 172;  
 Best Local Similarity 99.4%; Pred. No. 6.3e-92; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQDRKDFFGLPOBMEVGDQLQKDQAPVLYEM 60  
 Db 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQDRKDFFGLPOBMEVGDQLQKDQAPVLYEM 60  
 Qy 61 LQQSENLFITTEHSSAAWDTLLEQICTLGQQLDHTCRQNGEEDSELGNMDPIVTV 120  
 Db 61 LQQSFNLFTTEHSSAAWDTLLEQICTLGQQLDHTCRQNGEEDSELGNMDPIVTV 120  
 Qy 121 KKYFQGIYDYLQERGYSDCWEIVVEMMALTYSTLQRRLTRGGDINS P 172  
 Db 121 KKYFQGIYDYLQERGYSDCWEIVVEMMALTYSTLQRRLTRGGDINS P 172

Query completed: October 28, 2005, 14:56:01  
 Job time : 124 secs

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OM protein - protein search, using sw model

Run on: October 28, 2005, 14:51:03 ; Search time 25 Seconds  
(without alignments)  
661.971 Million cell updates/sec

Title: US-10-719-472-2  
Perfect score: 907  
Sequence: CYLSRKLMDDARENLKLLDR.....TVSTTQKRBLTKMGDDLNSP 172

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched:

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing First 45 summaries

Database : PIR 79;\*  
1: Pir1;\*  
2: Pir2;\*  
3: Pir3;\*  
4: Pir4;\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	897	98.9	195	2 JS0204	- trophoblast interf
2	880	97.0	195	2 I41068	- trophoblast protei
3	868	95.7	195	2 I41066	- trophoblast protei
4	865	95.4	195	2 I41069	- trophoblast protei
5	847	93.4	172	2 A61578	- trophoblast protei
6	846	93.3	195	2 I46272	- trophoblast interf
7	842	92.8	195	2 A61555	- trophoblast protei
8	806	88.9	195	2 I41067	- trophoblast protei
9	778	85.8	195	2 I41097	- trophoblast protei
10	745	82.1	184	2 I41098	- trophoblast protei
11	724	79.8	195	2 A35055	- trophoblast interf
12	723	79.7	195	2 S23151	- trophoblast protei
13	720	79.4	195	2 A40068	- trophoblast protei
14	709	79.4	195	2 S23050	- trophoblast protei
15	609	67.1	195	2 A53146	- interferon, tropho
16	608	67.0	195	2 A6103	- interferon alpha-I
17	587	64.7	195	2 I41070	- interferon omega -
18	585	64.5	195	2 I44397	- interferon alpha -
19	582	64.2	195	1 IVB011	- interferon alpha-I
20	513.5	56.6	190	2 S23111	- interferon alpha-I
21	499	55.0	195	1 IVH022	- interferon alpha-I
22	497	54.8	110	2 B61578	- trophoblast protei
23	488.3	53.9	190	2 S23112	- interferon alpha-I
24	473	52.1	195	1 IVH011	- interferon omega-1
25	469.5	51.8	179	2 S23110	- interferon alpha-I
26	454	50.1	189	2 I51370	- interferon precurs
27	446	49.2	176	2 I56314	- interferon alpha -
28	444	49.0	195	1 IVH021	- interferon alpha-I
29	48.5	189	1	IVH01	- interferon alpha-I

## ALIGNMENTS

RESULT 1  
JS0204  
Trophoblast interferon alpha precursor - sheep  
N;Alternate names: antiluteolytic; trophoblast antiluteolytic protein; trophoblastic prot  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 31-Mar-1990 #sequence revision 31-Mar-1990 #text\_change 09-Jul-2004  
C;Accession: S03799; BG1403; JS0204; A6103; S06221; S00306; A60857; A60936  
R;Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.  
Submitted to the EMBL Data Library, June 1988  
A;Reference number: S03799  
A;Accession: S03799  
A;Molecule type: DNA  
A;Cross-references: UNIPROT:P56828; UNIPROT:P56829; EMBL:X07920; NID:91821; PIDN:CAA3075;  
R;Charlier, M.; Rue, D.; Boisnard, M.; Martai, J.; Gaye, P.  
Mol. Cell. Endocrinol. 76, 161-171, 1991  
A;Title: Cloning and structural analysis of two distinct families of ovine interferon-  
A;Reference number: A61403; MUID:9324492; PMID:1820971  
A;Accession: BG1403  
A;Status: not compared with conceptual translation  
A;Molecule type: DNA  
A;Residues: 1-195 <STE>  
R;Charlier, M.; Rue, D.; Martai, J.; Gaye, P.  
Gene 77, 341-348, 1989  
A;Title: Cloning and expression of cDNA encoding ovine trophoblast: its identity with ε  
A;Reference number: JS0204; MUID:89326151; PMID:2753362  
A;Accession: JS0204  
A;Molecule type: mRNA  
A;Residues: 1-195 <CH>  
A;Cross-references: EMBL:M26386; NID:9530199; PIDN:AAA31584.1; PID:9530200  
A;Experimental source: embryo  
R;Stewart, H.J.; McCann, S.H.E.; Northrop, A.J.; Lamming, G.E.; Flint, A.P.F.  
J. Mol. Endocrinol. 2, 65-70, 1989  
A;Title: Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA levels.  
A;Reference number: A60947; MUID:8931557; PMID:2475129  
A;Accession: A60947  
A;Molecule type: mRNA  
A;Residues: 1-195 <ST>  
R;Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Marotti, K.R.; Polites, H.G.; Roberts, R.M.  
Re:Imakawa, K.; Anthony, R.V.; Kazemi, M.; Marotti, K.R.; Polites, H.G.; Roberts, R.M.  
Nature 330, 377-379, 1987  
A;Title: Antiluteolytic effects of blastocyst-secreted interferon investigated in vitro  
A;Reference number: A53867; MUID:90040331; PMID:2530342  
A;Accession: A53867  
A;Molecule type: mRNA  
A;Residues: 1-195 <ST>  
R;Imakawa, K.; Anthony, R.V.; Kazemi, M.; Marotti, K.R.; Polites, H.G.; Roberts, R.M.  
Nature 330, 377-379, 1987  
A;Title: Interferon-like sequence of ovine trophoblast protein secreted by embryonic trof  
A;Reference number: S06221; MUID:8806555; PMID:2446135  
A;Accession: S06221  
A;Molecule type: mRNA  
A;Residues: 1-27, 'RK', '30-105, 'E', '107-195 <IMA>

A;Cross-references: GB:Y00287; NID:91357; PIDN:CAA68396.1; PID:91358  
 R;Charnigny, G.; Reinaud, P.; Huet, J.C.; Guillotot, M.; Charlier, M.; Pernollet, J.C.;  
 FEBS Lett 229, 12-16, 1988  
 A;Title: High homology between a trophoblastic protein (trophoblastin) isolated from ovine amniotic fluid and a protein isolated from bovine amniotic fluid  
 A;Reference number: S00306; MUID:88137579; PMID:3254170  
 A;Molecule type: protein  
 A;Accession: A60857  
 R;Stewart, H.J.; McCann, S.H.E.; Barker, P.J.; Lee, K.E.; Lamming, G.E.; Flint, A.P.F.  
 J. Endocrinol. 115, R13-R15, 1987  
 A;Title: Interferon sequence homology and receptor binding activity of ovine trophoblastin  
 A;Reference number: A60857; MUID:88140688; PMID:2830359  
 A;Accession: A60857  
 A;Molecule type: protein  
 A;Residues: 'X', 25-'Q', 'X', 49-'D', 'D', 53-'WQYG', 59-'XG', 62-'G', 63-'ST2'>  
 R;Roberts, R.M.; Imakawa, K.; Niwao, Y.; Kazemi, M.; Malathy, P.V.; Hansen, T.R.; Glass J.; Interferon Res. 9, 175-187, 1989  
 A;Title: Interferon production by the preimplantation sheep embryo.  
 A;Reference number: A60936; MUID:89235312; PMID:2469745  
 A;Molecule type: protein  
 A;Residues: 'S', 25-'T', 'E', 30-'R', 'R', 38-'A', 'E', 46-'A', 'R', 47-'RQB'>  
 A;Note: 29-Arg and 37-Asn were also found  
 C;Comment: This protein is one of the major secretory proteins synthesized in vitro by the corpus luteum. This protein prevents regression of the corpus luteum.  
 C;Comment: Southern blotting reported in reference A61403 suggests there are at least five alpha-interferons.  
 C;Genetics:  
 A;Gene: ctp (TP-1)  
 C;Superfamily: interferon alpha  
 F;1-23/Domain: signal sequence #status predicted <SIG>  
 F;24-195/Product: trophoblast interferon alpha #status experimental <MAT>

Query Match 98.9%; Score 897; DB 2; Length 195;  
 Best Local Similarity 98.3%; Pred. No. 6.8e-75;  
 Matches 169; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQDRDGFLPQMVEDQLQDKDQAFPVLYEM 60  
 Db 24 CYLSQRMLDARENKLIDRMNRLSPHSCLQDRDGFLPQMVEDQLQDKDQAFPVLYEM 83

Qy 61 LOQSENLFYTHESSAAWDTTLLEOLCTGLOOQDHLDTCRQVMGBEDSELGNMDPIVTV 120  
 Db 84 LOQSFNLFYTHESSAAWDTTLLEOLCTGLOOQDHLDTCRQVMGBEDSELGNMDPIVTV 143

Qy 121 KKYFQGIYDYLQERGSYSDCAWEIVMRALTYVSTTLQKRLTNGGDLNSP 172  
 Db 144 KKYFQGIYDYLQERGSYSDCAWEIVMRALTYVSTTLQKRLTNGGDLNSP 195

RESULT 2  
 I47068  
 trophoblast protein-1 - sheep  
 C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
 C;Accession: I47068  
 R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K.  
 Biol. Reprod. 48, 768-778, 1993  
 A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and protein-2  
 A;Reference number: I46397; MUID:93250155; PMID:8485241  
 A;Accession: I47068  
 A;Status: preliminary; translated from GB/EMBL/DDJB  
 A;Molecule type: DNA  
 A;Residues: 1-195 <NEP>  
 A;Cross-references: UNIPROT:Q08071; GB:M88771; NID:9165824; PIDN:AAA31505.1; PID:9165825  
 C;Genetics:  
 A;Gene: TP-07  
 C;Superfamily: interferon alpha

Query Match 97.0%; Score 880; DB 2; Length 195;  
 Best Local Similarity 96.5%; Pred. No. 2.4e-73;  
 Matches 166; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQDRKDFGLPQMVEDQLQDKDQAFPVLYEM 60  
 Db 24 CYLSQRMLDARENKLIDRMNRLSPHSCLQDRKDFGLPQMVEDQLQDKDQAFPVLYEM 83

Qy 61 LOQSENLFYTHESSAAWDTTLLEOLCTGLOOQDHLDTCRQVMGBEDSELGNMDPIVTV 120  
 Db 84 LOQTFNLFYTHESSAAWDTTLLEOLCTGLOOQDHLDTCRQVMGBEDSELGNMDPIVTV 143

Qy 121 KKYFQGIYDYLQERGSYSDCAWEIVMRALTYVSTTLQKRLTNGGDLNSP 172  
 Db 144 KKYFQGIYDYLQERGSYSDCAWEIVMRALTYVSTTLQKRLTNGGDLNSP 195

RESULT 4  
 I47069  
 trophoblast protein-1 - sheep  
 C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
 C;Accession: I47069  
 R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K.  
 Biol. Reprod. 48, 768-778, 1993  
 A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and protein-2  
 A;Reference number: I46397; MUID:93250155; PMID:8485241  
 A;Accession: I47069  
 A;Status: preliminary; translated from GB/EMBL/DDJB  
 A;Molecule type: DNA  
 A;Residues: 1-195 <NEP>  
 A;Cross-references: UNIPROT:Q08072; GB:M88772; NID:9165826; PIDN:AAA31506.1; PID:9165827  
 C;Genetics:  
 A;Gene: TP-08  
 C;Superfamily: interferon alpha

Query Match 95.4%; Score 865; DB 2; Length 195;  
 Best Local Similarity 94.8%; Pred. No. 5.8e-72;  
 Matches 163; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLIDRMNRLSPHSCLQDRKDFGLPQMVEDQLQDKDQAFPVLYEM 60

Db	24	CTLSRKMLDAEENLKLDRMNLRLSPHSICLQRDKDFGLPQMVVEGQLQQAFPVLYEM	83	Qy	61	LOQSFNLFYTHESSAAWDTTLEQIQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVTV	120
Qy	61	LOQSFNLFYTHESSAAWDTTLEQIQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVTV	120	Db	84	LOQSFNLFYTHESSAAWDTTLEQIQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVTV	143
Db	84	LOQSFNLFYTHESSAAWDTTLEQIQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVTV	120	Qy	121	KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP	172
Qy	121	KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP	172	Db	144	KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP	195
Db	144	KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP	172				
					RESULT 7		
					A61455	trophoblast protein 1 precursor - sheep	
					N;Alternate names: interferon		
					C;Species: Ovis orientalis aries, Ovis ammon aries ( <i>domestic sheep</i> )		
					C;Date: 15-Oct-1994 #sequence_revision 09-Jul-2004		
					C;Accession: A61455; S12624		
					R;Roberts, R.M.; Cross, J.C.; Parin, C.E.; Hansen, T.R.; Klemann, S.W.; Imakawa, K.		
					J. Reprod. Fertil. Suppl. 41, 63-74, 1990		
					A;Title: Interferons at the placental interface.		
					A;Reference number: A61455; MUID:91012357; PMID:2213717		
					A;Accession: A61455		
					A;Status: preliminary		
					A;Molecule type: mRNA		
					A;Residues: 1-195 <ROB>		
					A;Cross-references: UNIPROT:Q29429		
					R;Klemann, S.W.; Imakawa, K.; Roberts, R.M.		
					Nucleic Acids Res. 18, 6724, 1990		
					A;Title: Sequence variability among ovine trophoblast interferon cDNA.		
					A;Reference number: S12624; MUID:91067497; PMID:1701245		
					A;Accession: S12624		
					A;Status: preliminary		
					A;Molecule type: mRNA		
					A;Residues: 1-195 <KE>		
					A;Cross-references: EMBL:X56343; NID:91155013; PIDN:CAA39783.1; PID:91155014		
					A;Experimental source: clone OP-1 p6		
					C;Superfamily: interferon alpha		
					F;1-23/Domain: signal sequence #status predicted <SIG>		
					F;24-195/Product: trophoblast protein 1 #status predicted <MAT>		
					Query Match 93.4%; Score 847; DB 2; Length 172;		
					Best Local Similarity 93.0%; Pred. No. 2, 2e-10; Indels 0; Gaps 0;		
					Matches 160; Conservative 7; Mismatches 5;		
					Query Match 92.8%; Score 842; DB 2; Length 195;		
					Best Local Similarity 93.0%; Pred. No. 7.4e-70; Indels 0; Gaps 0;		
					Matches 160; Conservative 6; Mismatches 6;		
					Qy 1 CYLSRKMLDAEENLKLDRMNLRLSPHSICLQRDKDFGLPQMVVEGQLQQAFPVLYEM 60		
					Db 1 CYLSRKMLDAEENLKLDRMNLRLSPHSICLQRDKDFGLPQMVVEGQLQQAFPVLYEM 60		
					Qy 121 KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP		
					Db 121 KKYFOGIYDYLQEKGYSDCAWEIVRVMRMALTTVLQKRLTKMGDLSNP		
					RESULT 8		
					I47067	trophoblast protein-1 - sheep	
					C;Species: Ovis orientalis aries, Ovis ammon aries ( <i>domestic sheep</i> )		
					C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 09-Jul-2004		
					C;Accession: I47067		
					R;Nephew, K.P.; Whaley, A.B.; Christenson, R.K.; Imakawa, K.		
					Biol. Reprod. 48, 768-778, 1993		
					A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and r		
					A;Reference number: I46397; MUID:93250155; PMID:9485241		
					A;Accession: I47067		
					A;Status: preliminary; translated from GB/EMBL/DDBJ		
					A;Molecule type: DNA		
					A;Residues: 1-195 <NEP>		
					A;Cross-references: UNIPROT:Q08053; GB:M88770; NID:9165822; PIDN:AAA31504.1; PMID:9165823		
					C;Genetics:		
					A;Gene: TP-02		

C;Superfamily: interferon alpha				
Query Match 88.0%; Score 806; DB 2; Length 195;	Score 745; DB 2; Length 184;			
Best Local Similarity 89.5%; Fred. No. 1.5e-66;	Pred. No. 5.e-61;			
Matches 154; Conservative 9; Mismatches 9;	Indels 0; Gaps 0;			
Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 60	Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 60	Query Match 82.1%; Score 745; DB 2; Length 184;		
Db 24 CYLSQMLIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 83	Db 24 CYLSQMLIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 83	Best Local Similarity 88.8%; Pred. No. 5.e-61;		
Qy 61 LQQSENLFLYTHESSAAWDTTLEQQLCTGLOQLDHLTDTCRGQVNGBEEDSSELGNMDPIVVY 120	Qy 61 LQQSENLFLYTHESSAAWDTTLEQQLCTGLOQLDHLTDTCRGQVNGBEEDSSELGNMDPIVVY 120	Mismatches 10; Indels 0; Gaps 0;		
Db 84 LQQSENLFLYTHESSAAWNTTLEQQLCTGLOQLDHLTDTCRGQVNGBEKDSLGNDPIVVY 143	Db 84 LQQSENLFLYTHESSAAWNTTLEQQLCTGLOQLDHLTDTCRGQVNGBEKDSLGNDPIVVY 143	Matches 142; Conservative 10;		
Qy 121 KKYFQIYDYLQEKYSDCAWEIYVEMMALTYSTTLLQRLLTKMGGDLN SP 172	Qy 121 KKYFQIYDYLQEKYSDCAWEIYVEMMALTYSTTLLQRLLTKMGGDLN SP 172	Best Local Similarity 91.1%; Pred. No. 4.e-59;		
Db 144 KKYFQGTHDYLQEKGSDCAWEIYVEMMALTSTSSTLQRLLTKMGGDLN SP 195	Db 144 KKYFQGTHDYLQEKGSDCAWEIYVEMMALTSTSSTLQRLLTKMGGDLN SP 195	Matches 138; Conservative 14;		
RESULT 9				
I47097	trophoblast protein-1 - sheep	A39505	Text	
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)	trophoblast interferon 4 precursor (clone bTP4) - bovine	C;Species: Bos primigenius taurus (cattle)		
C;Date: 15-Oct-1996 #sequence_revision 15-Oct-1996 #text_change 09-Jul-2004	C;Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004	C;Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004		
C;Accession: I47097	R;Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.	C;Accession: A39505		
R;Leaman, D.W.; Roberts, R.M.	J; Biol. Chem. 266, 3050-3057, 1991	R;Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.		
J; Interferon Res. 12, 1-11, 1992	A;Title: The genes for the trophoblast interferons and the related interferon-alphaII por-	J; Interferon Res. 12, 1-11, 1992		
A;Reference number: I46222; MUID:92242937; PMID:1374107	A;Reference number: A39505; MUID:91131606; PMID:1704373	A;Reference number: I46222; MUID:92242937; PMID:1374107		
A;Status: preliminary	A;Status: preliminary	A;Status: preliminary		
A;Molecule type: DNA	A;Molecule type: mRNA	A;Molecule type: mRNA		
A;Residues: 1-195 <HAN>	A;Cross-references: UNIPROT:R15696; GB:M60908; NID:9163213; PID:9163214;	A;Cross-references: UNIPROT:R15696; GB:M60908; NID:9163213; PID:9163214;		
C;Superfamily: interferon alpha	C;Superfamily: interferon alpha	C;Superfamily: interferon alpha		
C;Genetics:	F;1-23/Domain: signal sequence #status predicted <SIG>	F;1-23/Domain: signal sequence #status predicted <SIG>		
A;Gene: ORP-1	F;24-195/Product: interferon alpha-II #status predicted <MAT>	F;24-195/Product: interferon alpha-II #status predicted <MAT>		
C;Superfamily: interferon alpha				
Query Match 85.9%; Score 778; DB 2; Length 195;	Query Match 79.8%; Score 724; DB 2; Length 195;	Query Match 79.8%; Score 724; DB 2; Length 195;		
Best Local Similarity 86.6%; Fred. No. 5.4e-64;	Best Local Similarity 80.7%; Pred. No. 4.e-59;	Best Local Similarity 80.7%; Pred. No. 4.e-59;		
Matches 149; Conservative 13; Mismatches 10;	Matches 138; Conservative 14;	Matches 138; Conservative 14;		
Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 60	Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 60	Qy 1 CYLSRKLMIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 60		
Db 24 CYLSQMLIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 83	Db 24 CYLSQMLIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 83	Db 24 CYLSQMLIDARENKLIDMRNRLSPHSCLQRDKDFGLPOMEVDQLQKDQAAPPVLYEM 83		
Qy 61 LQQSENLFLYTHESSAAWDTTLEQQLCTGLOQLDHLTDTCRGQVNGBEEDSSELGNMDPIVVY 120	Qy 61 LQQSENLFLYTHESSAAWDTTLEQQLCTGLOQLDHLTDTCRGQVNGBEEDSSELGNMDPIVVY 120	Qy 61 LQQSENLFLYTHESSAAWDTTLEQQLCTGLOQLDHLTDTCRGQVNGBEEDSSELGNMDPIVVY 120		
Db 84 LQQSENLFLYTHESSAAWNTTLEQQLCTGLOQLDHLTDTCRGQVNGBEKDSLGNDPIVVY 143	Db 84 LQQSENLFLYTHESSAAWNTTLEQQLCTGLOQLDHLTDTCRGQVNGBEKDSLGNDPIVVY 143	Db 84 LQQSENLFLYTHESSAAWNTTLEQQLCTGLOQLDHLTDTCRGQVNGBEKDSLGNDPIVVY 143		
Qy 121 KKYFQIYDYLQEKYSDCAWEIYVEMMALTYSTTLLQRLLTKMGGDLN SP 172	Qy 121 KKYFQIYDYLQEKYSDCAWEIYVEMMALTYSTTLLQRLLTKMGGDLN SP 172	Qy 121 KKYFQIYDYLQEKYSDCAWEIYVEMMALTYSTTLLQRLLTKMGGDLN SP 172		
Db 144 KKYFQGTHDYLQEKGSDCAWEIYVEMMALTSTSSTLQRLLTKMGGDLN SP 195	Db 144 KKYFQGTHDYLQEKGSDCAWEIYVEMMALTSTSSTLQRLLTKMGGDLN SP 195	Db 144 KKYFQGTHDYLQEKGSDCAWEIYVEMMALTSTSSTLQRLLTKMGGDLN SP 195		
RESULT 12				
S23751	trophoblast interferon type I precursor - bovine	C;Species: Bos primigenius taurus (cattle)		
C;Sequence: S23751	C;Sequence: S23751	C;Sequence: S23751		
R;Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.	R;Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.	R;Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.		
J; Mol. Endocrinol. 4, 275-282, 1990	J; Mol. Endocrinol. 4, 275-282, 1990	J; Mol. Endocrinol. 4, 275-282, 1990		
A;Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early i	A;Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early i	A;Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early i		
A;Accession: S23751	A;Accession: S23751	A;Accession: S23751		
A;Status: preliminary	A;Status: preliminary	A;Status: preliminary		
A;Molecule type: DNA	A;Molecule type: DNA	A;Molecule type: DNA		
A;Residues: 1-195 <STB>	A;Residues: 1-195 <STB>	A;Residues: 1-195 <STB>		
C;Cross-references:	C;Cross-references:	C;Cross-references:		
A;Gene: ORP-1	A;Gene: ORP-1	A;Gene: ORP-1		
C;Superfamily: interferon alpha	C;Superfamily: interferon alpha	C;Superfamily: interferon alpha		
Query Match 79.7%; Score 723; DB 2; Length 195;	Query Match 79.7%; Score 723; DB 2; Length 195;	Query Match 79.7%; Score 723; DB 2; Length 195;		
Best Local Similarity 80.7%; Pred. No. 5.9e-59;	Best Local Similarity 80.7%; Pred. No. 5.9e-59;	Best Local Similarity 80.7%; Pred. No. 5.9e-59;		

Matches	138;	Conservative	14;	Mismatches	19;	Indels	0;	Gaps	0;	Matches	138;	Conservative	13;	Mismatches	20;	Indels	0;	Gaps	0;		
Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60							Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60								
Db	24	CYLEDHMLGARENRLIARMNLSPHSICLDRKDFFGIPQENVEGDLQKDOAISVHEM	83							Db	24	CYLEDHMLGARENRLIARMNLSPHSICLDRKDFFGIPQENVEGDLQKDOAISVHEM	83								
Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120							Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120								
Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143							Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143								
Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171							Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171								
Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194							Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194								
<hr/>																					
RESULT 13																					
A40068		trophoblast protein-1 precursor (clone btp509) - bovine								A40068		trophoblast protein-1 precursor (clone btp509) - bovine									
C;Species:	Bos primigenius taurus	(cattle)								C;Species:	Homo sapiens	(man)									
C;Date:	28-Feb-1992	#sequence_revision	28-Feb-1992	#text_change	09-Jul-2004					C;Date:	07-Oct-1994	#sequence_revision	07-Oct-1994	#text_change	09-Jul-2004						
C;Accession:	A40068									C;Accession:	A53746										
R;Imakawa, K.; Hansen, T.R.; Malathy, P.V.; Polites, H.V.; Marotti, K.R.; Mol. Endocrinol. 3, 127-139, 1989										R;Whaley, A.E.; Meka, C.S.R.; Harbison, L.A.; Hunt, J.S.; Imakawa, K. J. Biol. Chem. 269, 10864-10868, 1994											
A;Title:	Molecular cloning and characterization of complementary deoxyribonucleic acids on-alpha-II.									A;Title:	Identification and cellular localization of unique interferon mRNA from human p31										
A;Reference number:	MUID:89127268;									A;Reference number:	MUID:94193794;										
A;Accession:	A40068									A;Accession:	A53746										
A;Status:	preliminary									A;Status:	preliminary										
A;Molecule type:	mRNA									A;Molecule type:	mRNA										
A;Residues:	1-195 <NHA>									A;Residues:	1-195 <NHA>										
A;Cross-references:	UNIPROT:Q9NYK6;									A;Cross-references:	UNIPROT:P37290;										
C;Superfamily:	interferon alpha									C;Superfamily:	interferon alpha										
F;24-195/Product:	trophoblast protein-1 #status predicted <SIG>									Query Match	67.1%	Score	609;	DB	2;	Length	195;				
P;24-195/Domain:	interferon alpha									Best Local Similarity	68.6%	Pred.	No.	1-6e-48;							
Query Match	79.4%	Score	720;	DB	2;	Length	195;		Matches	118;	Conservative	20;	Mismatches	34;	Indels	0;	Gaps	0;			
Best Local Similarity	80.7%	Pred.	No.	1.1e-58;					Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60									
Matches	138;	Conservative	13;	Mismatches	20;	Indels	0;	Gaps	0;	Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60								
Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60							Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60								
Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83							Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83								
Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120							Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120								
Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143							Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143								
Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171							Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171								
Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194							Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194								
<hr/>																					
RESULT 14																					
B39505		trophoblast protein-1 precursor (clone 330) - bovine								B39505		trophoblast protein-1 precursor (clone 330) - bovine									
C;Species:	Bos primigenius taurus	(cattle)								C;Species:	Bos primigenius taurus	(cattle)									
C;Date:	30-Dec-1991	#sequence_revision	30-Dec-1991	#text_change	09-Jul-2004					C;Date:	30-Dec-1991	#sequence_revision	30-Dec-1991	#text_change	09-Jul-2004						
C;Accession:	B39505									R;Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M. J. Biol. Chem. 266, 3060-3067, 1991											
A;Title:	The genes for the trophoblast interferons and the related interferon-alpha II									A;Title:	The genes for the trophoblast interferons and the related interferon-alpha II										
A;Reference number:	A39505;									A;Reference number:	A39505;										
A;Accession:	B39505									A;Accession:	B39505										
A;Status:	preliminary									A;Status:	preliminary										
A;Residues:	1-195	<NHA>								A;Residues:	1-195	<NHA>									
A;Cross-references:	UNIPROT:P15696;									A;Cross-references:	UNIPROT:M60903;										
C;Superfamily:	interferon alpha									C;Superfamily:	interferon alpha										
F;24-195/Domain:	signal sequence #status predicted <SIG>									F;24-195/Domain:	signal sequence #status predicted <SIG>										
Query Match	79.4%	Score	720;	DB	2;	Length	195;			Query Match	79.4%	Score	720;	DB	2;	Length	195;				
Best Local Similarity	80.7%	Pred.	No.	1.1e-58;						Best Local Similarity	80.7%	Pred.	No.	1.1e-58;							
Matches	138;	Conservative	13;	Mismatches	20;	Indels	0;	Gaps	0;	Matches	138;	Conservative	13;	Mismatches	20;	Indels	0;	Gaps	0;		
Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60							Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60								
Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83							Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83								
Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120							Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120								
Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143							Db	84	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	143								
Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171							Qy	121	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALTVSTTLQRKLTKGMDLNS	171								
Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194							Db	144	KRYFQGIFTYDLYQKGYSDCAWEIVRVMRMALSSSTLQRKLTKGMDLNS	194								
<hr/>																					
RESULT 15																					
A40068		trophoblast protein-1 precursor (clone btp509) - bovine								A40068		trophoblast protein-1 precursor (clone btp509) - bovine									
C;Species:	Bos primigenius taurus	(cattle)								C;Species:	Bos primigenius taurus	(cattle)									
C;Date:	07-Oct-1994	#sequence_revision	07-Oct-1994	#text_change	09-Jul-2004					C;Date:	07-Oct-1994	#sequence_revision	07-Oct-1994	#text_change	09-Jul-2004						
C;Accession:	A53746									R;Whaley, A.E.; Meka, C.S.R.; Harbison, L.A.; Hunt, J.S.; Imakawa, K. J. Biol. Chem. 269, 10864-10868, 1994											
A;Title:	Identification and cellular localization of unique interferon mRNA from human p31									A;Title:	Identification and cellular localization of unique interferon mRNA from human p31										
A;Reference number:	MUID:94193794;									A;Reference number:	MUID:94193794;										
A;Accession:	A53746									A;Accession:	A53746										
A;Status:	preliminary									A;Status:	preliminary										
A;Residues:	1-195	<NHA>								A;Residues:	1-195	<NHA>									
A;Cross-references:	UNIPROT:P37290;									A;Cross-references:	UNIPROT:P37290;										
C;Superfamily:	interferon alpha									C;Superfamily:	interferon alpha										
F;24-195/Domain:	signal sequence #status predicted <SIG>									F;24-195/Domain:	signal sequence #status predicted <SIG>										
Query Match	67.1%	Score	609;	DB	2;	Length	195;			Query Match	67.1%	Score	609;	DB	2;	Length	195;				
Best Local Similarity	68.6%	Pred.	No.	1.6e-48;						Best Local Similarity	68.6%	Pred.	No.	1.6e-48;							
Matches	118;	Conservative	20;	Mismatches	34;	Indels	0;	Gaps	0;	Matches	118;	Conservative	20;	Mismatches	34;	Indels	0;	Gaps	0;		
Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60							Qy	1	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAFTPVYEM	60								
Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83							Db	24	CYLSRKMLDARENKLKIDRMNRLSPHSISCLDRKDFFGIPQENVEGDLQKDOAISVHEM	83								
Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120							Qy	61	LQSQNLFTYEHSSAANDTTLIEQLCTGLQQQLDHLDTCRGWGMGEDESELGNMDPVTY	120								

REGISTRATION  
BLANK (USPTO)

Result No.	Score	Query Match Length	DB ID	Description
1	907	100.0	195	1 INTL SHEEP
2	99.2	195	1 INT2 SHEEP	P56828 ovis aries
3	88.8	97.9	1 INT3 SHEEP	P56832 ovis aries
4	88.1	97.1	1 INT4 SHEEP	P56832 ovis aries
5	88.0	97.0	1 INT5 SHEEP	Q28594 ovis aries
6	87.7	96.7	1 INT6 SHEEP	Q08071 ovis aries
7	86.8	95.7	1 INT7 SHEEP	Q28595 ovis aries
8	86.5	95.4	1 INT8 SHEEP	Q08070 ovis aries
9	84.6	93.3	1 INT_CAPH1	Q08072 ovis aries
10	84.2	92.8	1 INTG SHEEP	P28171 capra hircu
11	83.0	91.5	2 Q6UZ49	Q29429 ovis aries
12	83.0	91.5	2 Q6UZ50	Oguz49 capra hircu
13	77.8	85.8	2 Q6RFZB8	Q6uz50 capra hircu
14	80.6	88.9	1 INTA SHEEP	Q6rfzB8 ovis aries
15	80.4	88.6	1 INT_BOVIN	Q08053 ovis aries
16	79.4	87.5	2 Q6UZ47	Q6uz47 capra hircu
17	78.6	86.7	2 Q6UZ42	Q6uz47 capra hircu
18	78.0	86.0	2 Q6UZ42	P28172 ovis mosc
19	77.8	85.8	1 INT_BOVIN	P28169 ovis aries
20	72.6	80.0	1 INT1_BOVIN	P15695 bos taurus
21	72.1	79.5	1 INT2_BOVIN	P56830 bos taurus
22	71.9	79.3	2 QBMJ29	Q8mj29 bos taurus
23	71.7	79.1	2 QMYK6	Q9myk6 bos taurus
24	70.7	77.9	1 INT_OVIMO	P56831 bos taurus
25	70.2	77.4	2 Q9GL5	Q9gl6 bos taurus
26	69.6	76.7	2 Q6DTH3	Q6duh3 bison bison
27	69.3	76.4	1 INT_BOVIN	Q9gl15 bos taurus
28	67.9	74.9	2 Q9GL5	Q95187 giraffa camelopardalis
29	65.3	72.0	1 INT_GIRCA	Q46633 cervus elaphus
30	60.9	67.1	1 IND_HUMAN	P37290 homo sapiens
31	67.0	69.5	2 Q7m2Y7	Q7m2Y7 ovis aries

Scoring table:		BLOSUM62		ALIGMENTS	
Scorched:	1612378 seqs,	512079187 residues	1612378	RESULT 1 INTL SHEEP STANDARD: ID P56828; P08316; DT 01-AUG-1988 (Rel.: 08, Created) DT 01-NOV-1990 (Rel.: 16, Last sequence update) DT 25-OCT-2004 (Rel.: 45, Last annotation update)	PRT; 195 AA.
Title:	US-10-719-472-2	762.577 Million cell updates/sec		DE Interferon tau-1 precursor (IFN-tail) (Trophoblast protein-1) (TP-1) DE (Trophoblast) (Antiluteolytic protein) (Trophoblast antiluteolytic protein). GN Name=IFNT1; Synonyms=OTP;	
Perfect score:	907	762.577 Million cell updates/sec		OS Ovis aries (Sheep). RA Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; OC Mammalia; Butheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; OC Caprinae; Ovis.	
Sequence:	1 CYLSRKMLDARENKILDR.....TVSTTLQKRLTKNGGDLNSP	172		OX NCBI_TaxID=9940; RN [1] RP SEQUENCE FROM N.A. RC TISSUE=Trophoblast; RX MEDLINE=88065855; PubMed=2446135; DOI=10.1038/330377a0; RA Imakawa K.; Antony R.V.; Kazemli M.; Marotti K.R.; Polites H.G., RA Roberts R.M.; RT "Interferon-like sequence of ovine trophoblast protein secreted by embryonic trophectoderm.", RN Nature 330:377-379 (1987). [2] RP FUNCTION. RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144; RA Spencer T.E.; Baier F.W.; RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium."; RN Endocrinology 137:1144-1147 (1996). [3] RP CIRCULAR DICROISM ANALYSIS, AND 3D-STRUCTURE MODELING. RX MEDLINE=95318234; PubMed=7971949; RA Jarpe M.A.; Johnson H.M.; Bazer F.W.; Ott T.L.; Curto B.V., RA Krishna N.R.; Pontzer C.H.; RT "Predicted structural motif of IFN tau.", RN Protein Eng. 7:863-867 (1994). [4] RP 3D-STRUCTURE MODELING. RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7; RA Martel J.-L.; Chené N.M.; Huynh L.P.; L'Haridon R.M.; Renaud P.B., RA Guillotin M.W.; Charlier M.A.; Charnay S.Y.; RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities"; RT Biochimie 80:755-777 (1998).	

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Query Match Length	DB ID	Description
1	907	100.0	P56828 ovis aries
2	99.2	195	P56822 ovis aries
3	88.8	97.9	P56832 ovis aries
4	88.1	97.1	Q28594 ovis aries
5	88.0	97.0	Q08071 ovis aries
6	87.7	96.7	Q28595 ovis aries
7	86.8	95.7	Q08070 ovis aries
8	86.5	95.4	Q08072 ovis aries
9	84.6	93.3	P28171 capra hircu
10	84.2	92.8	Q29429 ovis aries
11	83.0	91.5	Oguz49 capra hircu
12	83.0	91.5	Q6uz50 capra hircu
13	77.8	85.8	Q6rfzB8 ovis aries
14	80.6	88.9	Q08053 ovis aries
15	80.4	88.6	Q6uz47 capra hircu
16	79.4	87.5	Q6UZ43
17	78.6	86.7	Q6UZ42
18	78.0	86.0	Q6UZ42
19	77.8	85.8	1 INT_BOVIN
20	72.6	80.0	2 Q6UZ50
21	72.1	79.5	1 INT1_BOVIN
22	71.9	79.3	2 QBMJ29
23	71.7	79.1	2 QMYK6
24	70.7	77.9	1 INT_OVIMO
25	70.2	77.4	2 Q9GL5
26	69.6	76.7	2 Q6DTH3
27	69.3	76.4	1 INT_BOVIN
28	67.9	74.9	2 Q9GL5
29	65.3	72.0	1 INT_GIRCA
30	60.9	67.1	1 IND_HUMAN
31	67.0	69.5	2 Q7m2Y7

-!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and, therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high anti-luteolytic activity and immunomodulatory properties. In contrast with other FNs, IFN-tau is not virally inducible.

-!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

-!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

-!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

-!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

-!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alpha/beta subfamily.

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DR Y00287; CAA68396.1; -  
 DR S03799; JS0204  
 DR 1B5L; X-ray; @:24-195.  
 DR InterPro; IPR009079; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR PF00143; Interferon\_1.  
 DR PR00266; INTERFERONAB.  
 DR PROD0; P000550; Interferon\_abd; 1.  
 DR PROSTE; BS00252; INTERFERON\_A\_B\_D; 1.  
 KW 3D-structure; Antiviral; Cytokine; Hormone; Multigene family;  
 KW Pregnancy; Signal.  
 FT SIGNAL 1 23 By similarity.  
 FT CHAIN 24 195 Interferon tau-1.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.  
 FT TURN 25 26  
 FT HELIX 27 46  
 FT TURN 47 47  
 FT TURN 63 63  
 FT HELIX 64 68  
 FT TURN 69 69  
 FT HELIX 73 95  
 FT TURN 96 97  
 FT TURN 100 101  
 FT HELIX 103 122  
 FT HELIX 138 156  
 FT TURN 157 159  
 FT HELIX 161 186  
 SQ SEQUENCE 195 AA; 22192 MW; A4965AE25DEA5BC9 CRC64;

Query Match 100.0%; score 907, DB 1; length 195;  
 Best Local Similarity 100.0%; Pred. No. 3..3e-76;  
 Matches 172; Conservatism 0; Mismatches 0; Indels 0; Gaps 0;

Db	24 CYLSRKLMDDARENLKLLDRMNRLSPHSCLQDKDFQAFPVLEM 83
Oy	61 QQSEFNLYTEHSSAAWDTLLEOLCTGQQQLDHDTCRQVNGEESSELGNMDPITV 120
Db	84 QQSEFNLYTEHSSAAWDTLLEOLCTGQQQLDHDTCRQVNGEESSELGNMDPITV 143
Oy	121 KKYFGQIYDYLQKGYSCAWEIVRVENMRALTVSTTLQRKLTKGGDLNSP 172
Db	144 KKYFGQIYDYLQKGYSCAWEIVRVENMRALTVSTTLQRKLTKGGDLNSP 195
RESULT 2	
TD	TNT2 SHEEP STANDARD; PRT; 195 AA.
AC	P5629; P08316; (Rel. 08, Created)
DT	01-AUG-1988 (Rel. 39, Last sequence update)
DT	30-MAY-2000 (Rel. 44, Last annotation update)
DT	05-JUL-2004 (Rel. 44, Last annotation update)
DE	Interferon tau-2 precursor (IFN-tau1) (Trophoblast antiluteolytic protein).
DE	(Trophoblast antiluteolytic protein) (Antiluteosyn) (Trophoblast antiluteolytic protein).
GN	Name=IFNT2;
OS	Ovis aries (Sheep).
OC	Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Bovidae; Caprinae; Ovis.
OC	NCBI_TAXID=9940;
RN	[1]
RP	SEQUENCE FROM N.A. (IFN-TAU2C).
RX	MEDLINE=00040431; PubMed=2530342;
RA	Stewart H.J., Flint A.P., Lamming G.E., McCann S.H., Parkinson T.J.; RT "The biological effects of blastocyst-secreted interferon investigated in vitro and in vivo in the sheep." J. Reprod. Fertil. Suppl. 37:127-138 (1989).
RN	[2]
RP	SEQUENCE FROM N.A. (IFN-TAU2C).
RX	MEDLINE=89351557; PubMed=2475129;
RA	Stewart H.J., McCann S.H., Northrop A.J., Lamming G.E., Flint A.P.; RT "Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA levels." J. Mol. Endocrinol. 2:65-70 (1989).
RN	[3]
RP	SEQUENCE FROM N.A. (IFN-TAU2C).
RC	TISSUE=Embryo;
RX	MEDLINE=19326151; PubMed=2753362; DOI=10.1016/0378-1119(89)90082-6;
RA	Charlier M., Hue D., Martal J., Gaye P.; RT "Cloning and expression of cDNA encoding ovine trophoblast: its identity with a class-II alpha interferon." Gene 77:341-348 (1989).
RN	[4]
RP	SEQUENCE FROM N.A. (IFN-TAU2C).
RC	TISSUE=Embryo;
RX	MEDLINE=1067497; PubMed=1701245;
RA	Klemann S.W., Imakawa K., Roberts R.M.; RT "Identification of the expressed forms of ovine interferon-tau in the peri-implantation conceptus: sequence relationships and comparative biological activities." Nucleic Acids Res. 18:6724-6724 (1990).
RN	[5]
RP	SEQUENCE OF 24-195 FROM N.A. (IFN-TAU2B).
RC	Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.; RT "Sequence of the expressed forms of ovine interferon-tau in the peri-implantation conceptus: sequence relationships and comparative biological activities." Submitted (JUN-1999) to the EMBL/GenBank/DDBJ databases.
RN	[6]
RP	SEQUENCE OF 24-68.
RX	MEDLINE=88137579; PubMed=3254170; DOI=10.1016/0014-5793(88)80574-X;
RA	Charpigny G., Renaud P., Huet J.-C., Guillermot M., Charlier M.; RT "High homology between a trophoblastic protein (trophoblastin) isolated from ovine embryo and alpha-interferons." FEBS Lett. 228:12-16 (1988).
RN	[7]
RP	FUNCTION.



[4] 3D-STRUCTURE MODELING.  
RN RP MEDLINE-93318252; PubMed-8746786;  
RX Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
RT "A three-dimensional model of interferon-tau.";  
RL J. Interferon Cytokine Res. 15;1053-1060(1995).  
RN [5]  
RP MEDLINE-90081096; PubMed-9865498; DOI=10.1016/S0310-9084(99)80029-7;  
RX Marcal J.I., Chene N.M., Huygh L.P., L'Haridon R.M., Reinaud P.B.,  
RA Guilloumot M.W., Charlier M.A., Charpigny S.Y.;  
RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-  
RT ubiquitous expression, structure-function relationships, a pregnancy  
RT hormonal embryonic signal and cross-species therapeutic  
RT potentialities.";  
RL Biochimie 80;755-777(1998).  
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
recognition of pregnancy. Interacts with endometrial receptors,  
probably type I interferon receptors, and blocks estrogen receptor  
expression, preventing the estrogen-induced increase in oxytocin  
receptor expression in the endometrium. This results in the  
suppression of the pulsatile endometrial release of the luteolytic  
hormone prostaglandin F2-alpha, hindering the regression of the  
corpus luteum (luteolysis) and therefore a return to ovarian  
cyclicity. This, and a possible direct effect of IFN-tau on  
prostaglandin synthesis, leads in turn to continued ovarian  
progesterone secretion, which stimulates the secretion by the  
endometrium of the nutrients required for the growth of the  
conceptus. In summary, displays particularly with particular weak  
antiproliferative potency concurrently with particular weak  
cytotoxicity, high antileytic activity and immunomodulatory  
properties. In contrast with other IFNs, IFN-tau is not virally  
inducible.  
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
CC -!- TISSUE SPECIALIVITY: Constitutively and exclusively expressed in  
the mononuclear cells of the extra-embryonic trophoblast.  
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesised by the  
sheep conceptus between days 13 and 21 of pregnancy.  
CC -!- POLYMORPHISM: There seems to be two variants of IFN-tau 3: A/P8V1  
(CC shown here) and B/F8V3.  
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
IFN-omega genes in the ruminantia suborder and have continued to  
duplicate independently in different lineages of the ruminantia.  
CC They encode for proteins very similar in sequence but with  
different biological potency and pattern of expression.  
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
alpha/I subfamily.  
CC -----  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
between the Swiss Institute of Bioinformatics and the EMBL outstation -  
CC the European Bioinformatics Institute. There are no restrictions on its  
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CC or send an email to license@isb-sib.ch).  
CC -----  
DR EMBL; AF158817; ADD44969\_1; -;  
DR HSSP; P5628; 1B5L;  
DR InterPro; IPR009079; 4 helix cytokine.  
DR InterPro; IPR000471; Interferon\_abd.  
DR Pfam; PF00143; Interferon; 1.  
DR PRINTS; PR00265; INTERFERONAS.  
DR ProDom; PD000550; Interferon\_abd; 1.  
DR ProDom; PS00552; INTERFERON\_A\_B\_D; FALSE NEG.  
KW Antiviral; Cytokine; Hormone; Multigene family; Polymorphism;  
KW Pregnancy.  
FT DISUFD 1 99 By similarity.  
FT DISUFD 29 139 By similarity.  
FT VARIANT 87 87 T -> S (in isoform B)  
FT VARIANT 124 125 P -> SQ (in isoform B).  
FT VARIANT 130 130 L -> Y (in isoform B).  
SQ SEQUENCE 172 AA; 19866 MW; 7BFF1F0316545C8E2 CRC64;

Query Match 97.9%; Score 888; DB 1; Length 172;  
Best Local Similarity 97.7%; Pred. No. 1.6-74 /  
Matches 168; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CYLSRKLMIDARENLKLIDMRNRLSPHSCLQDRKDFGLPQEMYVGDLQKDQAFVLYEM 60  
Db 1 CYLSERLMLDARENLKLIDMRNRLSPHSCLQDRKDFGLPQEMYVGDLQKDQAFVLYEM 60  
QY 61 LQQSEFNLFTEHSSAAWDTLLEQLCTGQQLDHLDTGQNGEEDSELGNMDPITV 120  
Db 61 LQQSEFNLFTEHSSAAWDTLLEQLCTGQQLDHLDTGQNGEEDSELGNMDPITV 120  
QY 121 KKYFGIYDYLQERGYSDCWEIVRVMRLATVSTTLQRKLTNGDLNNSP 172  
Db 121 KKIFEGIDYLQERGYSDCWEIVRVMRLATVSTTLQRKLTNGDLNNSP 172

RESULT 4  
INT4\_TINT4\_SHEEP STANDARD PRT; 195 AA.  
ID Q28594; REFL 39, Created)  
AC 30-MAY-2000 (Ref. 39, Last sequence update)  
DT 05-JUL-2004 (Ref. 44, Last annotation update)  
DE Interferon tau-4 precursor (IFN-tau4) (Trophoblast protein-1) (TP-1)  
DE (Trophoblast (Antiluteolytin) (Trophoblast antiluteolytic protein)  
DE (P3).  
DE Name=INT4;  
GN Ovis aries (Sheep);  
OC Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OC Caprinae; Ovis.  
NCBI\_TAXID=9940;  
RN [1]  
RN SEQUENCE FROM N.A.  
RC TISSUE=Embryo;  
RA Kleemann S.W., Imamura K., Roberts R.M.;  
RT MEDLINE=11067497; PubMed=1701245;  
RA "Sequence variability among ovine trophoblast interferon cDNA.";  
RN [2]  
RN Nucleic Acids Res. 18:6724-6724(1990).  
RN FUNCTION.  
RP MEDLINE=961174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
RA Spencer T.E., Bazer F.W.;  
RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin genes in the ovine endometrium.";  
RN [3]  
RN CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
RX MEDLINE=95062134; PubMed=7971949;  
RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,  
RA Krishna N.R., Pontzer C.H.;  
RT "Predicted structural motif of IFN tau.";  
RL Protein Eng. 7:863-867(1994).  
RN [4]  
RN 3D-STRUCTURE MODELING.  
RX MEDLINE=96318252; PubMed=8746786;  
RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
RT "A three-dimensional model of interferon-tau.";  
RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
RN [5]  
RN REVIEW.  
RX MEDLINE=92081096; PubMed=9855498; DOI=10.1016/S0300-9084(99)80029-7;  
RA Martel J.L., Chehe N.M., Hayn L.P., L'Haridon R.M., Reinaud P.B.,  
RA Guilloumot M.W., Charlier M.A., Charpigny S.Y.;  
RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-  
RT ubiquitous expression, structure-function relationships, a pregnancy  
RT hormonal embryonic signal and cross-species therapeutic  
RT potentialities.";  
RL Biochimie 80;755-777(1998).  
-!- FUNCTION: Paracrine hormone primarily responsible for maternal  
recognition of pregnancy. Interacts with endometrial receptors,

probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F<sub>2</sub>-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

-!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

-!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

-!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

-!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia.

They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

-!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.

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CC DR X56341; P56828; 1B5L.

DR InterPro; IPR009079; 4\_helix\_cytokine.

DR InterPro; IPR00471; Interferon\_abd.

DR PRINTS; PR0266; INTERFERON\_AB.

DR PRODom; PD00550; Interferon\_abd; 1.

DR PROSITE; PS00252; INTERFERON\_AB\_D; 1.

KW Antiviral; Cytokine; Hormone; Multigenic Family; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-4.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22209 MW; 408BD4BDB5AA931 CRC64;

Query Match 97.1% Score 881; DB 1; Length 195;  
Best Local Similarity 96.5%; Pred. No. 8 5e-74;  
Matches 166; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENKLKLDRMNRLSPHSCLQDRKDGLPQEMVEGQLQKQAFPVLYEM 60  
Db 24 CYLSQRMLDARENKLKLDRMNRLSPHSCLQDRKDGLPQEMVEGQLQKQAFPVLYEM 83

Qy 61 LQOSNLFTYENSSAAMDTTLQLCTGLQOOLHDTCRQVMGBEDSEGNMDPIVY 120

Db 84 LQOSNLFTYENSSAAMDTTLQLCTGLQOOLHDTCRQVMGBEDSEGNMDPIVY 143

Qy 121 KKYFQGTYDYLQDKGYSDCAWEVRMMRAITVSTTLQKRLTRKGCGDLNSP 172

Db 144 KKYFQG1HDLQDKGYSDCAWEVRMMRAITVSTTLQKRLTRKGCGDLNSP 195

RESULT 5  
INT7\_SHEEP ID INT7\_SHEEP STANDARD; PRT; 195 AA.  
AC Q08071; DT 30-MAY-2000 (Rel. 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)  
DT 05-JUN-2004 (Rel. 44, Last annotation update)  
DS Interferon tau-7 precursor (IFN-tau7) (Trophoblast (Trophoblast DE (TP-0)).  
DE (Trophoblast) (Antiluteolytic protein)  
DS Name=IFNT7;  
DS Ovis aries (Sheep).  
DS NCBI\_Taxonomy: Metzoa; Chordata; Craniata; Ruminantia; Peccata; Bovidae;  
OC Caprinae; Ovis  
OC Caprinae; Ovis  
RN [1]  
RP SEQUENCE FROM N.A.  
RX TISSUE-Trophoblast; PubMed=8485241;  
RX MEDLINE=91250155;  
RN RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;  
RN RT "Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related sheep type I interferons.";  
RN RL Biol. Reprod. 48:768-778(1993).  
RN RP FUNCTION.  
RX MEDLINE=96174804; PubMed=8605886; DOI=10.1210/en.137.3.1144;  
RX RA Spencer T.E., Baier F.W., Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto B.V.,  
RN RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";  
RN RL Endocrinology 137:1144-1147(1996).  
RN [3]  
RN CIRCULAR DICHOSENIC ANALYSIS, AND 3D-STRUCTURE MODELING.  
RX MEDLINE=9631852; PubMed=8746786;  
RX MEDLINE=95062134; PubMed=7971949;  
RX RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto B.V., Krishna N.R., Pontzer C.H.;  
RN RT "Predicted structural motif of IFN tau.";  
RN RL Protein Eng. 7:863-867(1994).  
RN [4]  
RN 3D-STRUCTURE MODELING.  
RX MEDLINE=9631852; PubMed=8746786;  
RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(98)80029-7;  
RN Senda T., Saitoh S.-I., Mitani Y., Li J., Roberts R.M.;  
RN RT "A three-dimensional model of interferon-tau.";  
RN RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
RN [5]  
RN REVIEW.  
RX MEDLINE=99081096; PubMed=9865498;  
RN Marci J.L., Cheze N.M., Huynh L.P., L'Haridon R.M., Reinhard P.B., Guillermot M.W., Charlier M.A., Charpin S.Y.,  
RN RA "IFN-tau: a novel subtype I IFNI. Structural characteristics, non-uniquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutics potentialities.";  
RN RT Biochimie 80:755-777(1998).  
RN -!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F<sub>2</sub>-alpha, hindering the regression of the corpus luteum (luteolysis), and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.  
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.  
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.  
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to

CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.

CC -|- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alphaII subfamily.

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 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to license@isb-sib.ch).

CC DR EMBL; M8871; AAA31505.1; - .

CC DR PIR; I47058; 147068 .

CC DR HSSP; P56228; 1B5L .

CC DR InterPro; IPR00471; Interferon\_abd .

CC DR Pfam; PF00143; Interferon; 1 .

CC DR PRINTS; PR000266; INTERFERONAB .

CC DR ProDom; P000550; Interferon\_abd; 1 .

CC DR PROSITE; PS00232; INTERFERON\_A\_B\_D; 1 .

CC KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal .

CC FT SIGNAL 1 23 By similarity.

CC FT CHAIN 24 195 Interferon tau-7.

CC FT DISULFID 24 122 By similarity.

CC PT DISULFID 52 162 By similarity.

CC SQ SEQUENCE 195 AA; 22223 MW; 1444AED80BAB48 CRC64;

Qy 1 CYLSRKMLDARENLLKLDNRNRLSLSPHSCLDRKDGLPQEMVGDQLQDQAFVLYEM 60  
 Db 24 CYLSRKMLDARENLLKLDNRNRLSLSPHSCLDRKDGLPQEMVGDQLQDQAFVLYEM 83

Qy 61 IQQSENFLYTHSSAAWDTTLLEQCLTGQQLQDHLTDTCGQMGEDSGEKGNDPIVTV 120  
 Db 84 IQQSNFLYTHSSAAWDTTLLEQCLTGQQLQDHLTDTCGQMGEDSGEKGNDPIVTV 143

Qy 121 KKYFGQIYDYLQEKGYSDCAMEIIVMEMALATSTLQRKLTKMGDDINSP 172  
 Db 144 KKYFGQIYDYLQEKGYSDCAMEIIVMEMALATSTLQRKLTKMGDDINSP 195

RESULT 6  
 INT5\_SHEEP ID\_5HEEP STANDARD; PRT; 195 AA.  
 AC Q28595;  
 DT 30-MAY-2000 (Rel. 39, Created)  
 DT 39 (Rel. 39, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Interferon tau-5 precursor (IFN-tau5) (Trophoblast protein-1)  
 DE (Trophoblast) (Antiluteolytic protein) (P5).  
 GN Name=IFNT5;  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OX NCBI\_Taxid=9940; [1]

RN 1 [1] SEQUENCE FROM N.A.; PubMed=1701245;  
 RP MEDLINE=9106747; PubMed=1701245;  
 RX Kleemann S. W.; Imakawa K.; Roberts R.M.;  
 RT "Sequence variability among ovine trophoblast interferon cDNA.";  
 RL Nucleic Acids Res. 18:6724-6724(1990).  
 RN 2 [2] FUNCTION;  
 RP MEDLINE=91174804; PubMed=8603586; DOI=10.1210/en.13.1144;  
 RX Spencer T.E.; Bazer F.W.;

"Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";  
 RT Endocrinology 137:1144-1147(1996).  
 RN [3] CIRCULAR DICHROISM ANALYSIS AND 3D-STRUCTURE MODELING.  
 RP MEDLINE=95062134; PubMed=791949;  
 RA Jarpe M.A.; Johnson H.M.; Bazer F.W.; Ott T.L.; Curto E.V.;  
 RA Krishna N.R.; Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau.";  
 RL Protein Eng. 7:863-867(1994).  
 RN 4 [4] 3D-STRUCTURE MODELING.  
 RP MEDLINE=6318352; PubMed=8746786;  
 RA Senda T.; Saitoh S.-I.; Mitau Y.; Li J.; Roberts R.M.;  
 RT "A three-dimensional model of interferon-tau.";  
 J. Interferon Cytokine Res. 15:1053-1060(1995);  
 RN [5] REVIEW.  
 RP MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L.; Chen N.M.; Huynh L.P.; L'Haridon R.M.; Reinaud P.B.;  
 RA Guillotot M.W.; Charlier M.A.; Charpigny S.Y.;  
 RT "IFN-tau: a novel subtype 1 IFNI. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutics potentialities.";  
 RT Biochimie 80:755-777(1998).  
 CC |- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alphal, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays partially high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.  
 CC |- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC |- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extraembryonic trophoblast.  
 CC |- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.  
 CC |- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN- $\alpha$ -omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.  
 CC |- SIMILARITY: Belongs to the alpha/beta interferon family. IFN- $\alpha$  alphaII subfamily.  
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 CC EMBL; X5632; CAA9782.1; - .  
 DR HSSP; P56228; 1B5L .  
 DR InterPro; IPR00907; 4\_helix\_cytokine .  
 DR IPR00471; Interferon\_abd .  
 DR Pfam; PF00143; Interferon\_abd .  
 DR PRINTS; PR00266; INTERFERONAB .  
 DR PRODom; PD000550; Interferon\_abd .  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D .  
 DR Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal .  
 KW

PT SIGNAL 1 23 By similarity.  
 PT CHAIN 24 195 Interferon tau-5.  
 PT DISULPID 24 122 By similarity.  
 PT DISULPID 52 162 By similarity.  
 SQ SEQUENCE 195 AA; 22163 MW; 14EA5038CB60A562 CRC64;

Query Match Score 877; DB 1; Length 195;  
 Best Local Similarity 95.9%; Pred. No. 2e-73; Indels 0; Gaps 0;  
 Matches 165; Conservative 6; Mismatches 1; Delins 0;

Qy 1 CYLSRKMLDAEENLKLDRMRNLSPHSCLQRKDQLPQMVNEGQDQAFPVYEM 60  
 24 CYLSQRMLDAEENLKLDRMRNLSPHSCLQRKDQLPQMVNEGQDQAFPVYEM 83

Db 61 LOQSFNFYTHESSAAAMDTTILEQLCTGLQOQDLDHTCRQVMGKEDSEGNVDPITV 120  
 84 LOQSFNFYTHESSAAAMDTTILEQLCTGLQOQDLDHTCRQVMGKEDSEGNVDPITV 143

Qy 121 KKYFGQIYDYLQEKGSYSDCAEVIVRVMRMALTVSTTLQKRKTGMGDLNSP 172  
 144 KKYFGQIYDYLQEKGSYSDCAEVIVRVMRMALTVSTTLQKRKTGMGDLNSP 195

Db 144 KKYFGQIYDYLQEKGSYSDCAEVIVRVMRMALTVSTTLQKRKTGMGDLNSP 195

GN Name=IFNT9;  
 TISSUE=Trophoblast (Sheep)  
 MEDLINE=93250155; PubMed=8485241;  
 RA Nephev K.P.; Whaley A.E.; Christensen R.K.; Imakawa K.;  
 OC Mammalia; Chordata; Craniata; Vertebrata; Buteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Bovidae;  
 OC Caprinae; Ovis;  
 OC NCBI\_Taxid=9404;  
 RN [1] FUNCTION.  
 RN SEQUENCE FROM N.A.  
 RC TISSUE=Trophoblast (Sheep).  
 RX MEDLINE=93250155; PubMed=8485241;  
 RA Nephev K.P.; Whaley A.E.; Christensen R.K.; Imakawa K.;  
 RT "Differential expression of distinct mRNAs for ovine trophoblast  
 protein-1 and related sheep type I interferons.";  
 RL Reprod. 48:768-778(1993).  
 RN [2] FUNCTION.  
 RX MEDLINE=95174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E.; Bazer F.W.;  
 RT "Ovine interferon tau suppresses transcription of the estrogen  
 receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Endocrinology 137:1144-1147(1996).  
 RN [3] CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=9506213; PubMed=1971949;  
 RA Krishna N.R.; Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau.";  
 RL Protein Eng. 7:863-867(1994).  
 RN [4] 3D-STRUCTURE MODELING.  
 RX MEDLINE=9618252; PubMed=8746786;  
 RA Senda T.; Saitoh S.-I.; Mitsui Y.; Li J.; Roberts R.M.;  
 RT "A three-dimensional model of interferon tau.";  
 RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
 RN [5] REVIEW.  
 RX MEDLINE=99081096; PubMed=8865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.-L.; Chehe N.M.; Huynh L.P.; Laridon R.M.; Reinaud P.B.,  
 RA Guillermot M.W.; Charlier M.A.; Chaupigny S.Y.;  
 RT "IFN-tau: a novel subtype I IFNI. Structural characteristics, non-

RT ubiquitous expression, structure-function relationships, a pregnancy  
 RT hormonal embryonic signal and cross-species therapeutic  
 RT potentialities.";  
 RL Biochimie 80:755-777(1998).  

CC -1- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors,  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progestrone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high anti-luteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.

CC -1- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC -1- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoblast.  

CC -1- DEVELOPMENTAL STAGE: Major secretary product synthesized by the  
 CC sheep conceptus between days 13 and 21 of pregnancy.  

CC -1- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  

CC -1- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alpha/beta subfamily.

CC -----

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 CC or send an email to license@isb-sib.ch).

CC -----

CC EMBL; M88773; AAA31503.1; -.  
 DR PIR; 147066; 147066.  
 DR HSSP; P56328; 1B5L.  
 DR InterPro; IPR009079; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon\_1.  
 DR PRINTS; PR00265; INTERFERON\_AB.  
 DR ProDom; PD000550; Interferon\_abd.  
 DR PROSITE; PS00522; INTERFERON\_AB\_D.  
 DR Antiviral; Cytokine; Multigenic Family; Pregnancy; Signal.  
 RW SIGNAL 1 23 By similarity.  
 FT CHAIN 24 195 Interferon tau-9.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.  
 SQ SEQUENCE 195 AA; 22127 MW; 00DB9CB089D98493 CRC64;  
 Query Match Score 868; DB 1; Length 195;  
 Best Local Similarity 95.3%; Pred. No. 1.4e-72; Indels 2; Mismatches 6; Gaps 0;

Qy 1 CYLSRKMLDAEENLKLDRMRNLSPHSCLQRKDQLPQMVNEGQDQAFPVYEM 60  
 24 CYLSQRMLDAEENLKLDRMRNLSPHSCLQRKDQLPQMVNEGQDQAFPVYEM 83

Db 61 LOQSFNFYTHESSAAAMDTTILEQLCTGLQOQDLDHTCRQVMGKEDSEGNVDPITV 120  
 84 LOQSFNFYTHESSAAAMDTTILEQLCTGLQOQDLDHTCRQVMGKEDSEGNVDPITV 143

Qy 121 KKYFGQIYDYLQEKGSYSDCAEVIVRVMRMALTVSTTLQKRKTGMGDLNSP 172  
 144 KKYFGQIYDYLQEKGSYSDCAEVIVRVMRMALTVSTTLQKRKTGMGDLNSP 195



RT "Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution of related genes among mammals.";  
 RT J. Interferon Res. 12:1-11(1992).  
 [2]

RP REVIEW

RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Renaud P.B.,

RA Guillonot M.W., Charrier M.A., Charpigny S.Y.;

RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-

ubiquitous expression, structure-function relationships, a pregnancy

hormonal embryonic signal and cross-species therapeutic

potentialities".;

RL Biochimie 80:755-777(1998).

CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2 alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency, concurrently with particular weak cytotoxicity, high antilutolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.

CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.

CC -----  
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CC PRINTS; PRODOM; PIR0266; INTERFERONAB; PROSITE; PS000550; INTERFERON\_AB\_D; 1.  
 DR PIR: I46272; I46272.  
 DR HSSP; P5628; IB5L.  
 DR InterPro; IPR00079; 4\_helix\_cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon\_1.  
 DR ProDom; PD000550; Interferon\_abd; 1.  
 DR PROSITE; PS00252; INTERFERON\_AB\_D; 1.  
 KW Antiviral; Cytokine; Hormone; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.  
 FT CHAIN 24 135 Interferon tau.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22172 MW; 04991D3B1CDB67 CRC64;

DR PIR: I46272; I46272.

DR HSSP; P5628; IB5L.

DR InterPro; IPR00079; 4\_helix\_cytokine.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 135 Interferon tau.

FT DISULFID 52 162 By similarity.

SQ SEQUENCE 195 AA; 22172 MW; 04991D3B1CDB67 CRC64;

RT "Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution of related genes among mammals.";	Db 24 CYLSRKLMLDARENILKLDRMNRLSPHSOOFRKDQFLPQEMVEGDLQKDQASCVLYEM 83
RT J. Interferon Res. 12:1-11(1992). [2]	Qy 61 LQQSEFNLFYEHSSAAWDTTLLFQLCTGLQQQLDHLDTCRGQVMGEEDSELEGNMNPVLYT 120
RN RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;	Db 84 LQQSEFNLFYEHSSAAWDTTLLDQLCTGLOQQLDHLDTCRGQVMGEEDSELEGNMNPVLYT 143
RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Renaud P.B.,	Qy 121 KKYFGQIYDYLQEKGSDCAMEIVMEMLATSTTLQRBLTKNGDILNSP 172
RA Guillonot M.W., Charrier M.A., Charpigny S.Y.;	Db 144 KKYFGQIYDYLQEKGSDCAMEIVMEMLATSTTLQRBLTKNGDILNSP 195
RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";	RESULT 10
RT Biochimie 80:755-777(1998).	INT6_SHEEP
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2 alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency, concurrently with particular weak cytotoxicity, high antilutolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.	ID INT6_SHEEP
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.	AC Q29439;
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.	DT 30-MAY-2000 (Rel. 39, Created)
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.	DT 30-MAY-2004 (Rel. 39, Last sequence update)
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.	DT 05-JUL-2004 (Rel. 44, Last annotation update)
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.	DB Interferon tau-6 precursor (IFN-tau6) (Trophoblast protein-1) (TP-1) (Trophoblast (Antiluteolytic protein). Name=s-ENT6; Name=s-ENT6;
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal	GN Ovis aries (Sheep); Ovis aries (Sheep); Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Butharia; Cetartiodactyla; Ruminantia; Bovidae; Caprinae; Ovis; OX NCBI_TaxID=9940;
CC -!- RECOGNITION: Probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2 alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency, concurrently with particular weak cytotoxicity, high antilutolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.	RN RN
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.	RP SEQUENCE FROM N.A. (IFN-TAU6D).
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.	RC TISSUE=Embryo;
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.	RC MEDLINE=91067497; PubMed=1701245;
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.	RA Kleemann S.W., Imakawa K., Roberts R.M.; RA "Sequence variability among ovine trophoblast interferon CDNA." ; RL Nucleic Acids Res. 18:6724-6724 (1990).
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.	RN [2] SEQUENCE FROM N.A. (IFN-TAU6D).
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal	RP ROBERTS R.M.; RA Submitted (JAN-1996) to the EMBL/GenBank/DDBJ databases.
CC -!- RECOGNITION: Probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium.	RN [3] SEQUENCE OF 24-195 FROM N.A. (IFN-TAU6A; IFN-TAU6B AND IFN-TAU6C).
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.	RC Winkelmann G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.; RA "Identification of the expressed forms of ovine interferon-tau in the peri-implantation conceptus: sequence relationships and comparative RT biological activities"; RT submitted (JUN-1999) to the EMBL/GenBank/DDBJ databases.
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.	RN [4] FUNCTION: RT
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.	RP MEDLINE=B6174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.	RA Spencer T.E., Bazer F.W.; RA "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium." ; RT Endocrinology 137:1144-1147 (1996).
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.	RN [5] CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal	RP MEDLINE=95062134; PubMed=7971949;
CC -!- RECOGNITION: Probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium.	RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.; RA Krishna N.R., Pontzer C.H.; RA "Predicted structural motif of IFN tau." ; RT Protein Eng. 7:863-867(1994).
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.	RN [6] 3D-STRUCTURE MODELING.
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.	RP MEDLINE=26318252; PubMed=8746786;
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the conceptus during a very short period in early pregnancy.	RA Senda T., Saichoh S.-I., Mitabui Y., Li J., Roberts R.M.; RA "A three-dimensional model of interferon-tau." ; RT J. Interferon Cytokine Res. 15:1053-1060 (1995).
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.	RN [7] REVIEW.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alphaII subfamily.	RP MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal	RA Marral J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Renaud P.B., Renaud P.B., RA "IFN-tau: a novel subtype I IFN. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic

Query Match 1 CYLSRKLMLDARENILKLDRMNRLSPHSOOFRKDQFLPQEMVEGDLQKDQASCVLYEM 60  
 Best Local Similarity 93.6%; Pred. No. 1.5e-70; Indels 0; Gaps 0;  
 Matches 161; Conservative 4; Mismatches 7; RT  
 SQ 1 CYLSRKLMLDARENILKLDRMNRLSPHSOOFRKDQFLPQEMVEGDLQKDQASCVLYEM 60  
 Qy

potentialities.";

RL Biochimie 80:75-77(1998).

CC FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin P2 alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high anti-luteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

CC DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

CC POLYMORPHISM: There seems to be four variants of IFN-tau: 6; A/P6V2, B/P6V2, C/P6V1 and D/B6/P12 (shown here).

CC MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

CC SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alpha subfamily.

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DR EMBL: X56143; CAA39783.1; -.

DR EMBL: AF158823; AA04975.1; -.

DR EMBL: AF158822; AA044974.1; -.

DR PIR: AF158821; AA044973.1; -.

DR HSSP: P56828; 1B5L.

DR InterPro: IPR00079; 4\_helix\_cytokine.

DR InterPro: IPR000479; Interferon\_abd.

DR Pfam: PF00143; Interferon\_1.

DR PRINTS: PR00266; INTERFERONAB.

DR PROSITE: PS00222; INTERFERON\_A\_B\_D; 1.

KW Antiviral; Cytokine; Glycoprotein; Hormone; Multigene family;

KW Polymorphism; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau 6.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT CARBOHYD 101 101 N-linked (GlcNAc. . .) (Potential).

FT VARIANT 130 130 K -> B (in IFN-tau6A and IFN-tau6B).

FT VARIANT 136 136 K -> N (in IFN-tau6A, IFN-tau6B and IFN-

tau6C). By similarity.

FT VARIANT 188 188 T -> M (in IFN-tau6A).

FT SEQUENCE 195 AA; 22102 MW; CB4283978CA387 CRC64;

Query Match Score 92.8%; Best Local Similarity 93.0%; Pred. No. 3.6e-70; Matches 160; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

CC 1 CYLSRKLMILDARENLRLDRMNRLSPHSCLQDRKDFGLPQEMVEGDDQLQDKDQAQSVLVEM 60

Db	24 CYLSRKLMILDARENLRLDRMNRLSPHSCLQDRKDFGLPQEMVEGDDQLQDKDQAQSVLVEM 83
Qy	61 LQQSFNLTYTEHSSAAWDTLLEOLCTGQQLDHLDTCRGQYGEEDSELGNMDPITYV 120
Db	84 LQQSFNVFTEHSSAAWNTLLEOLCTGQQLDHLDTCRGPYGEKDSBELGRNDPITYV 143
Qy	121 KKYPOGIYDYLQEKGSYSDCAWEIVRVENMRALTYSTTLQKRLTGMGGDLNSP 172
Db	144 KKYPOGIYDYLQEKGSYSDCAWEIVRVENMRALTSSTTLQKRLTGMGGDLNSP 195
<b>RESULT 11</b>	
Q6UZ49	PRELIMINARY;
ID Q6UZ49;	PRT; 195 AA.
AC Q6UZ49;	
DT 05-JUL-2004 (TREMBLrel. 27, Created)	
DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)	
DT 05-JUL-2004 (TREMBLrel. 27, Last annotation update)	
DR Interferon-tau 3.	
OS Capra hircus (Goat).	
OC Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Peccora; Bovidae; Caprinae; Capra.	
OC NCBT_TaxID=9325;	
RP SEQUENCE FROM N_A.	
RA Bay A.D., Wagner S.K., Sheils A.B., Whitley N.C., Kiesling D.O., Barbato G.F.	
RA Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.	
CC -1 SIMILARITY: Belongs to the alpha/beta interferon family.	
DR EMBL; AY357329; AYQ56198.1; -.	
DR HSSP; P56828; 1B5L.	
DR GO; GO:005576; C_extracellular; IEA.	
DR GO; GO:0006932; P_defense_response; IEA.	
DR InterPro; IPR00909; 4_helix_cytokine.	
DR InterPro; IPR00413; Interferon_abd.	
DR Pfam; PF00143; Interferon_1.	
DR PRINTS; PR00266; INTERFERONAB.	
DR ProDom; PD000550; Interferon_abd.	
DR SMART; SM00076; IPRab; 1.	
DR PROSITE; PS00252; INTERFERON_A_B_D; 1.	
DR KW Antiviral; Cytokine.	
SQ SEQUENCE 195 AA; 22294 MW; 323B702D1D16E69E CRC64;	
Query Match Score 91.5%; Best Local Similarity 92.4%; Matches 139; Conservative 139; Score 840; DB 2; Length 195; DB 0; Gaps 0;	
Qy 1 CYLSRKLMILDARENLRLDRMNRLSPHSCLQDRKDFGLPQEMVEGDDQLQDKDQAQSVLVEM 60	
Db 24 CYLSRKLMILDARENLRLDRMNRLSPHSCLQDRKDFGLPQEMVEGDDQLQDKDQAQSVLVEM 83	
Qy 61 LQQSFNLTYTEHSSAAWDTLLEOLCTGQQLDHLDTCRGQYGEEDSELGNMDPITYV 120	
Db 84 LQQSFNVFTEHSSAAWNTLLEOLCTGQQLDHLDTCRGPYGEKDSBELGRNDPITYV 143	
Qy 121 KKYPOGIYDYLQEKGSYSDCAWEIVRVENMRALTYSTTLQKRLTGMGGDLNSP 172	
Db 144 KKYPOGIYDYLQEKGSYSDCAWEIVRVENMRALTSSTTLQKRLTGMGGDLNSP 195	
<b>RESULT 12</b>	
Q6UZ50	PRELIMINARY;
ID Q6UZ50;	PRT; 195 AA.
AC Q6UZ50;	
DT 05-JUL-2004 (TREMBLrel. 27, Created)	
DT 05-JUL-2004 (TREMBLrel. 27, Last sequence update)	
DE Interferon-tau 2b (Interferon-tau 2a).	
OS Capra hircus (Goat).	
OC Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;	

Qy 1 CYLSRKLMILDARENLRLDRMNRLSPHSCLQDRKDFGLPQEMVEGDDQLQDKDQAQSVLVEM 60



RL	Biochimie 80:755-777(1998).
-!-	FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis) and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiulcerolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.
-!-	SUBCELLULAR LOCATION: Secreted into the uterine lumen.
-!-	TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.
-!-	DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.
-!-	MISCELLANEOUS: IFN-tau genes are intronless. They evolved from TFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.
-!-	SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alpha/beta subfamily.
CC	-----
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <a href="http://www.isb-sib.ch/announce/or">http://www.isb-sib.ch/announce/or</a> send an email to license@isb-sib.ch).
CC	-----
DR	EMBL; M88770; AAA1504.1; -.
DR	PIR; 147067; 147067.
DR	HSSP; P56828; 1B5L.
DR	InterPro; IPR009079; 4_helix_cytokine.
DR	InterPro; IPR00471; Interferon_abd.
DR	Pfam; PF00143; Interferon_1.
DR	PRINTS; PR00265; INTERFERONAB.
DR	Prodom; PD000550; Interferon_abd; 1.
DR	PROSTTE; PS00232; INTERFERON_A_B_D; 1.
KW	Antiviral, Cytokine, Glycoprotein, Hormone, Multigene family;
KW	Pregnancy, Signal.
FT	SIGNAL 1 23 By Similarity.
FT	CHAIN 24 195 Interferon tau-10.
FT	DISUFRID 24 122 By similarity.
FT	DISUFRID 52 162 By similarity.
FT	CARBHYD 101 101 N-linked (GlcNAc. . .) (Potential).
SEQ	SEQUENCE 195 AA: 22069 MW: 16084C3184CA3963 CRC64;
Query Match	88.9%; Score 806; DB 1; Length 195;
Best Local Similarity	89.5%; Pred. No. 7.9e-67;
Matches 154:	Conservative 9; Mismatches 9; Indels 0; Gaps 0;
Qy	1 CYLSRMMLDARENKILDRMARNRSSLSPSCLQRDKPOEMVSDQLQDAFPVLYEM 60
Db	24 CYLSQMMLDARENKILDRMARNRSSLSPSCLQRDKPOEMVSDQLQEAQAFCVLYEM 83
Qy	61 LOOFSPLFYTEHSSAAWDTTLEBQTCGLQOOLDPHDLTGRQVNGEEDSELGNMNDPFLTV 120
Db	LQQSFLNPHYTERSSAAWNTTLEBQTCGLQOOLDPHDLTGRQVNGEEDSELGNMNDPFLTV 143
Qy	121 KKYFQGIVYDVLQEKYSQDCAMEIVVMMRALTSTLQRLTKGQDGLNSP 172
Db	144 KKYFOGHIDYLQEKYSQDCAWETVRVMMRALTSTLQRLTKGQDGLNSP 195

RESULT 15						
Q6UZ47		PRELIMINARY;		PRT; 195 AA.		
ID	Q6UZ47;					
AC	Q6UZ47;					
DT	05-JUL-2004	(T-EMBLref).	27,	Created)		
DT	05-JUL-2004	(T-EMBLref).	27,	Last sequence update)		
DT	05-JUL-2004	(T-EMBLref).	27,	Last annotation update)		
DE	Interferon-tau 4b (Interferon-tau 4c) (Interferon-tau 4d) (Interferon-tau 4e) (Interferon-tau 4f)					
DE	Capra hircus (Goat)					
OS	Mammalia; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;					
OC	Caprinae; Capra;					
OC	Caprinae; Capra;					
RN	[1] -					
RP	SEQUENCE FROM N.A.					
RA	Ealy A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O.,					
RA	Barbato G.F.,					
RA	Barbato G.F.,					
RL	Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.					
CC	- - SIMILARITY: Belongs to the alpha/beta interferon family.					
DR	AY357331;	AAQ56200;	1;	-.		
DR	AY357332;	AAQ56201;	1;	-.		
DR	AY357333;	AAQ56202;	1;	-.		
DR	AY357334;	AAQ56203;	1;	-.		
DR	AY357335;	AAQ56204;	1;	-.		
DR	AY357336;	AAQ56205;	1;	-.		
DR	AY357337;	AAQ56206;	1;	-.		
DR	P56328;	BSL.				
GO	GO:0005126; C:extracellular; IEA.					
DR	GO: 0005126; P:hematopoietin/interferon-class					
DR	(D200-domain. . . ; IEA.					
DR	IPRF009079; 4-helix_cytokine.					
DR	Interfero; IPR00471; Interferon_abd.					
DR	PF00143; Interferon; 1.					
DR	PRINTS; PRO0266; INTERFERONAB.					
DR	Prodrom; P000550; Interferon_abd; 1.					
SMART	SM00076; IFabd; 1.					
DR	PROSITE; PS0022; INTERFERON_A_B_D; 1.					
KW	Antiviral; Cytokine.					
SEQUENCE	195 AA;	22354 MW;	D364AC9A972D8FC4 CRC64;			
SQ	Query Match 88.6%; Score 804; DB 2; Length 195;					
	Best Local Similarity 90.1%; Pred. No. 1.2e-6;					
	Matches 155; Conservative 8; Mismatches 9; Indels 0; Gaps 0;					
Qy	1 CYLSRKMLIDARENKLDRMNRLLSPHSCLQRDKDFGLPOEMVGGDLOKDOAPVLYEM					
Db	24 CYLSRKMLIDARENKLDRMNRLLSPHSCLQRDKDFGLPOEMVGGDLOKDOAPVLYEM					
Qy	61 LQQQTFLYTEHSSAAWDTLLEQLCTGQQLDHLDTGRQYQNGEEDSELGNNDPDTIV					
Db	84 LQQQTFLYTEHSSAAWNTLLEQLHTGLQQQLEBDLDTGRQYQNGEKSSELGNNDPIMTV					
Qy	121 KRYFOGIDYDLOQEGKYSDCDAWEIYVEMMRALTYSTLQRKLTQGDLNSP					
Db	125 KRYFOGIDYDLOQEGKYSDCDAWEIYVEMMRALTYSTLQRKLTQGDLNSP					

COMPUTER READABLE FORM:

  COMPUTER TYPE: Floppy disk  
   COMPUTER: IBM PC compatible  
   OPERATING SYSTEM: PC-DOS/MS-DOS  
   SOFTWARE: Patentee Release #1.0, Version #1.25

CURRENT APPLICATION DATA:  
   APPLICATION NUMBER: US/10/029, 890  
   FILING DATE: 21-Dec-2001  
   CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:  
   APPLICATION NUMBER: US/08/616, 904  
   FILING DATE: 15-MAR-1996  
   ATTORNEY/AGENT INFORMATION:  
     NAME: Sholtz, Charles K.  
     REGISTRATION NUMBER: 38, 615  
     REFERENCE/DOCKET NUMBER: 5600-0003  
   TELECOMMUNICATION INFORMATION:  
     TELEPHONE: 415-324-0960  
     TELEFAX: 415-324-0960  
   INFORMATION FOR SEQ ID NO: 2:  
   SEQUENCE CHARACTERISTICS:  
     LENGTH: 172 amino acids  
     TYPE: amino acid  
     TOPOLOGY: linear  
     MOLECULE TYPE: protein  
     ORIGINAL SOURCE: INDIVIDUAL ISOLATE: amino acid sequence of a mature ovine Interferon protein

US-10-029-890-2:

SEQUENCE DESCRIPTION: SEQ ID NO: 2:	Query Match 99.1%; Score 899; DB 14; Length 172;
Best Local Similarity 98.8%; Fred. No. 9.9e-88;	Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSERLMLDARENKLDRMNRLSPHSCLQRKDGLPQEMVSDQLQDQAFFVLYEM 60  
 Db 1 CYLSERLMLDARENKLDRMNRLSPHSCLQRKDGLPQEMVSDQLQDQAFFVLYEM 60

Qy 61 LQQSENLFTYEHSSAAWDTLLEQIQTGLQQQNGEEDSFLGNNMDPIVTY 120  
 Db 61 LQQSENLFTYEHSSAAWDTLLEQIQTGLQQQNGEEDSFLGNNMDPIVTY 120

Qy 121 KKYFGQIYDYLQEKYSDCAWEIYRVEVMRALTYSTTLQRLLTKMGDLNSP 172  
 Db 121 KKYFGQIYDYLQEKYSDCAWEIYRVEVMRALTYSTTLQRLLTKMGDLNSP 172

Search completed: October 28, 2005, 15:05:44  
 Job time : 117 secs

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RESULT 15  
 US-10-346-269-2  
 ; Sequence 2, Application US/10346269  
 ; GENERAL INFORMATION:  
   ; APPLICANT: Sokawa, Yoshihiro  
   ; TITLE OF INVENTION: Oral Administration of Interferon-tau  
   ; FILE REFERENCE: 55600.8009.US00  
   ; CURRENT FILING DATE: 2003-01-16  
   ; PRIOR APPLICATION NUMBER: US 60/349, 658  
   ; PRIOR FILING DATE: 2002-01-16  
   ; NUMBER OF SEQ ID NOS: 3  
   ; SOFTWARE: FastSEQ for Windows Version 4.0  
   ; SEQ ID NO: 2  
   ; LENGTH: 172  
   ; TYPE: PRT  
   ; ORGANISM: Artificial Sequence  
   ; FEATURE:  
   ; OTHER INFORMATION: amino acid encoded by SEQ ID NO:1

US-10-346-269-2

Query Match 99.1%; Score 899; DB 15; Length 172;
Best Local Similarity 98.8%; Fred. No. 9.9e-88;

RESULT 12  
 US-09-746-919-2 Application US/09746919  
 Patent No. US20020013452A1  
 GENERAL INFORMATION:  
 APPLICANT: Ponzer, Carol H.  
 TITLE OF INVENTION: Interferon Tau Compositions and Methods of Use  
 NUMBER OF SEQUENCES: 44  
 CORRESPONDENCE ADDRESS:  
 ADDRESSEE: Dehlinger & Associates  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

COMPUTER READABLE FORM:  
 MEDIUM TYPE: Floppy disk  
 COMPUTER: IBM PC compatible  
 OPERATING SYSTEM: PC-DOS/MS-DOS  
 SOFTWARE: PatentIn Release #1.0, Version #1.25  
 CURRENT APPLICATION DATA:  
 APPLICATION NUMBER: US/09/746,919  
 FILING DATE:  
 CLASSIFICATION:  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: 09/045,467  
 FILING DATE:  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/438,753  
 FILING DATE: 10-MAY-1995  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 08/139,891  
 FILING DATE: 19-OCT-1993  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/847,741  
 FILING DATE: 09-MAR-1992  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/318,050  
 FILING DATE: 02-MAR-1989  
 PRIOR APPLICATION DATA:  
 APPLICATION NUMBER: US 07/969,890  
 FILING DATE: 30-OCT-1982  
 ATTORNEY/AGENT INFORMATION:  
 NAME: Dehlinger, Peter J.  
 REGISTRATION NUMBER: 28,006  
 TELECOMMUNICATION INFORMATION:  
 TELEPHONE: 650-324-0880  
 TELEFAX: 650-324-0960  
 INFORMATION FOR SEQ ID NO: 2:  
 SEQUENCE CHARACTERISTICS:  
 LENGTH: 172 amino acids  
 TYPE: amino acid  
 TOPOLOGY: linear  
 MOLECULE TYPE: protein  
 ORIGINAL SOURCE: amino acid sequence of a mature Ovifntau protein  
 INDIVIDUAL ISOLATE: Ovifntau protein

RESULT 13  
 US-09-910-406C-2  
 Sequence 2, Application US/09910406C  
 Publication No. US2003004927A1  
 GENERAL INFORMATION:  
 APPLICANT: Liu, Chih-Ping  
 TITLE OF INVENTION: Composition for Treatment of and Method of Monitoring Hepatitis C Virus Using Interferon-tau  
 CURRENT APPLICATION NUMBER: US/09/910,406C  
 PRIORITY APPLICATION NUMBER: JP 317160  
 PRIOR FILING DATE: 2000-10-17  
 PRIOR APPLICATION NUMBER: US 60/219,128  
 PRIOR FILING DATE: 2000-07-19  
 NUMBER OF SEQ ID NOS: 4  
 SOFTWARE: FastSEQ for Windows Version 4.0  
 SEQ ID NO: 2  
 LENGTH: 172  
 TYPE: PRT  
 ORGANISM: Ovis Aries  
 US-09-910-406C-2

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Query Match 99.1%: Score 999; DB 10; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

RESULT 14  
 US-10-029-890-2  
 Sequence 2, Application US/10029890  
 Publication No. US200301276A1  
 GENERAL INFORMATION:  
 APPLICANT: Soos, Jeanne M.  
 Schiffenbauer, Joel L.  
 Johnson, Howard M.  
 TITLE OF INVENTION: Orally-Administered Interferon-Tau Compositions and Methods

NUMBER OF SEQUENCES: 6  
 CORRESPONDENCE ADDRESS:  
 ADDRESS: Dehlinger & Associates  
 STREET: 350 Cambridge Ave., Suite 250  
 CITY: Palo Alto  
 STATE: CA  
 COUNTRY: USA  
 ZIP: 94306

Query Match 99.1%: Score 999; DB 9; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
 Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

RESULT 9  
US-10-991-653-3

/ Sequence 3 Application US/10991653  
 / GENERAL INFORMATION:  
 / APPLICANT: Liu, Chih-Ping  
 / TITLE OF INVENTION: Methods for Treatment of Obesity and for Promotion of Weight Loss  
 / FILE REFERENCE: 55600-8012 US01  
 / CURRENT FILING DATE: 2004-11-17  
 / PRIOR APPLICATION NUMBER: US 60/523, 077  
 / PRIOR FILING DATE: 2003-11-17  
 / PRIOR APPLICATION NUMBER: US 60/532, 851  
 / PRIOR FILING DATE: 2003-12-24  
 / NUMBER OF SEQ ID NOS: 4  
 / SOFTWARE: PatentIn version 3.1  
 / SEQ ID NO: 3  
 / TYPE: PRT  
 / ORGANISM: Artificial  
 / FEATURE:  
 / OTHER INFORMATION: Recombinant IFNtau Based on Ovis aries Sequence  
 US-11-078-608-3

Query Match 100.0%; Score 907; DB 20; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
 Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQRKDQFGLPOEMVSGDQLQDKDQAFPVLYEM 60  
 Db 1 CYLSERMLDARENKLDRMNRLSPHSCLQRKDQFGLQEMVSGDQLQDKDQAFPVLYEM 60

61 LQQSFNLFTEHSSAAWDTLLEQLCGTGQQLQDHLTDCRGQVMGEEDSSELGNMDPITVY 120  
 Qy 61 LQQSFNLFTEHSSAAWDTLLEQLCGTGQQLQDHLTDCRGQVMGEEDSSELGNMDPITVY 120  
 Db 61 KKYFGIYDYLQEGYSDCAWEIVRVMRMALTYSTTLQKRLTKKGDDLNSP 172  
 Qy 121 KKYFGIYDYLQEGYSDCAWEIVRVMRMALTYSTTLQKRLTKKGDDLNSP 172  
 Db 121 KKYFGIYDYLQEGYSDCAWEIVRVMRMALTYSTTLQKRLTKKGDDLNSP 172

RESULT 11  
US-11-040-706-3

/ Sequence 3, Application US/11040706  
 / Publication No. US2005022645A1  
 / GENERAL INFORMATION:  
 / APPLICANT: Liu, Chih-Ping  
 / INVENTOR: Villaret, Lorelie H.  
 / TITLE OF INVENTION: Method of treatment using interferon-tau  
 / CURRENT APPLICATION NUMBER: US/11/040,706  
 / FILE REFERENCE: 55600-9014 US05  
 / PRIOR APPLICATION NUMBER: US/10/884,741  
 / PRIOR FILING DATE: 2004-07-02  
 / PRIOR APPLICATION NUMBER: US 10/824,710  
 / PRIOR FILING DATE: 2004-04-14  
 / PRIOR APPLICATION NUMBER: US 60/552,279  
 / PRIOR FILING DATE: 2004-03-10  
 / PRIOR APPLICATION NUMBER: US 10/825,068  
 / PRIOR FILING DATE: 2004-04-14  
 / PRIOR APPLICATION NUMBER: US 10/825,382  
 / LENGTH: 172  
 / TYPE: PRT  
 / ORGANISM: Artificial  
 / FEATURE:  
 / OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence  
 US-11-040-706-3

Query Match 100.0%; Score 907; DB 20; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
 Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENKLDRMNRLSPHSCLQRKDQFGLPOEMVSGDQLQDKDQAFPVLYEM 60  
 Db 1 CYLSERMLDARENKLDRMNRLSPHSCLQRKDQFGLQEMVSGDQLQDKDQAFPVLYEM 60

61 LQQSFNLFTEHSSAAWDTLLEQLCGTGQQLQDHLTDCRGQVMGEEDSSELGNMDPITVY 120  
 Qy 61 LQQSFNLFTEHSSAAWDTLLEQLCGTGQQLQDHLTDCRGQVMGEEDSSELGNMDPITVY 120

CURRENT APPLICATION NUMBER: US/10/884,741  
; PRIOR APPLICATION NUMBER: US/10/824,710  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFN $\tau$  based on Ovis aries sequence  
US-10-884-741-3

Query Match Score 907; DB 17; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60  
Db 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60

Qy 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120  
Db 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120

Qy 121 KKYFOGYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGDDNSP 172  
Db 121 KKYFOGYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGDDNSP 172

RESULT 6  
US-10-825-382-3  
; Sequence 3, Application US/10825382  
; Publication No. US20050118137A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Method of Treatment Using Interferon- $\tau$ AU  
; FILE REFERENCE: 55600-8014 US01  
; CURRENT APPLICATION NUMBER: US/10/825,382  
; CURRENT FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFN $\tau$  based on Ovis aries sequence  
US-10-825-382-3

Query Match Score 907; DB 17; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60  
Db 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60

Qy 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120  
Db 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120

RESULT 7  
US-10-825-457-3  
; Sequence 3, Application US/10825457  
; Publication No. US20050118138A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Method of Treatment Using Interferon- $\tau$ AU  
; FILE REFERENCE: 55600-8014 US02  
; CURRENT APPLICATION NUMBER: US/10/825,457  
; CURRENT FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFN $\tau$  based on Ovis aries sequence  
US-10-825-457-3

Query Match Score 907; DB 17; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
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Db 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60

Qy 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120  
Db 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120

RESULT 8  
US-10-824-710-3  
; Sequence 3, Application US/10824710  
; Publication No. US20050142109A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Method of Treatment Using Interferon- $\tau$ AU  
; FILE REFERENCE: 55600-8014 US00  
; CURRENT APPLICATION NUMBER: US/10/824,710  
; CURRENT FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFN $\tau$  based on Ovis aries sequence  
US-10-824-710-3

Query Match Score 907; DB 18; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
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Db 1 CYLSERLMLDARENKLKLDMRNLSPHSICLDRKDGLPQEMVEGDDQLQKDOAFPVLYEM 60

Qy 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120  
Db 61 LQSQFNLYTEHSSAANDTLLEQLCGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTY 120

Qy 121 KKYFOGYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGDDNSP 172  
Db 121 KKYFOGYDYLQEKGSYSDCAWEIVRVEMMRALTVSTTLQRKLTKMGDDNSP 172

61 LOQSFNLFTYEHSSAAWDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120  
 61 LOQSFNLFTYEHSSAAWDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120  
 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172  
 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172

**RESULT 2**  
 Sequence 2, Application US/10683-214-2  
 Publication No. US20040126360A1  
 GENERAL INFORMATION:  
 APPLICANT: Manning, Mark C.  
 APPLICANT: Nayar, Rajiv  
 TITLE OF INVENTION: Oral formulations for proteins and polypeptides  
 FILE REFERENCE: 55600-8011.US00  
 CURRENT APPLICATION NUMBER: US/10/683,214  
 CURRENT FILING DATE: 2003-10-07  
 PRIOR APPLICATION NUMBER: US 60/417,292  
 PRIOR FILING DATE: 2002-10-09  
 NUMBER OF SEQ ID NOS: 18  
 SOFTWARE: PatentIN version 3.1  
 SEQ ID NO 2  
 LENGTH: 172  
 TYPE: PRT  
 ORGANISM: Artificial  
 FEATURE:  
 OTHER INFORMATION: recombinant mature ovine IFNtau, based on SEQ ID NO:1.  
 -10-683-14-2

Query Match 100.0%; Score 907; DB 16; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYSLERLMIDARENKLIDRMNLSPHSCLQRKDQFGFLPQEVMVEGDQLQDQAFPVYEM 60  
 Db 1 CYSLERLMIDARENKLIDRMNLSPHSCLQRKDQFGFLPQEVMVEGDQLQDQAFPVYEM 60

Qy 61 LOQSFNLFTYEHSSAANDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120  
 Db 61 LOQSFNLFTYEHSSAANDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120

Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172  
 Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172

**RESULT 4**  
 US-10-825-068-3  
 Sequence 3, Application US/10825068  
 Publication No. US20040247565A1  
 GENERAL INFORMATION:  
 APPLICANT: Liu, Chih-Ping  
 APPLICANT: Villaret, Lorelie H.  
 TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
 FILE REFERENCE: 55600-8014.US03  
 CURRENT APPLICATION NUMBER: US/10/825,068  
 CURRENT FILING DATE: 2004-04-14  
 PRIOR APPLICATION NUMBER: US 60/552,279  
 PRIOR FILING DATE: 2004-03-10  
 NUMBER OF SEQ ID NOS: 4  
 SOFTWARE: PatentIN version 3.1  
 SEQ ID NO 3  
 LENGTH: 172  
 TYPE: PRT  
 ORGANISM: Artificial  
 FEATURE:  
 OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence  
 US-10-825-068-3

Query Match 100.0%; Score 907; DB 16; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 CYSLERLMIDARENKLIDRMNLSPHSCLQRKDQFGFLPQEVMVEGDQLQDQAFPVYEM 60  
 Db 1 CYSLERLMIDARENKLIDRMNLSPHSCLQRKDQFGFLPQEVMVEGDQLQDQAFPVYEM 60

Qy 61 LOQSFNLFTYEHSSAANDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120  
 Db 61 LOQSFNLFTYEHSSAANDTTLEQLCTGLOQQLDHLTCRGYMGEESELGNMDPIVTV 120

Qy 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172  
 Db 121 KKYFOGIYDYLQEKGSYSDCAWEIVRVMRMALTVSTTLQRKLTGMGGDLNSP 172

**RESULT 5**  
 US-10-884-741-3  
 Sequence 3, Application US/10719472  
 Publication No. US20040191217A1  
 GENERAL INFORMATION:  
 APPLICANT: Sotawa, Yoshihiro  
 APPLICANT: Liu, Chih-Ping  
 TITLE OF INVENTION: Method of treatment using interferon-tau  
 FILE REFERENCE: 55600-8013.US00  
 CURRENT APPLICATION NUMBER: US/10/719,472  
 CURRENT FILING DATE: 2003-11-21  
 PRIOR APPLICATION NUMBER: US/10/698,927  
 PRIOR FILING DATE: 2003-10-31  
 PRIOR APPLICATION NUMBER: US 09/910,406  
 PRIOR FILING DATE: 2001-07-19  
 PRIOR APPLICATION NUMBER: US 60/219,128  
 PRIOR FILING DATE: 2000-07-19  
 PRIOR APPLICATION NUMBER: US 10/346,269  
 PRIOR FILING DATE: 2003-01-16  
 PRIOR APPLICATION NUMBER: US 60/349,658  
 NUMBER OF SEQ ID NOS: 4  
 SOFTWARE: PatentIN version 3.1  
 SEQ ID NO 3

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**protein search, using sw model**

run on: October 28, 2005, 14:52:27 ; Search time 113 Seconds  
(without alignments)  
636.313 Million cell updates/sec

**title:** US-10-719-472-3  
**target score:** 907  
**sequence:** 1 CYLSERLMLDARENLYKLUDR.....TVSTTLQKRLLTKMGGDLNSP 172

**scoring table:** BLOSUM62  
Gapext 10.0 , Gapext 0.5

**searched:** 1865214 seqs, 418043040 residues

Total number of hits satisfying chosen parameters: 1865214

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing First 45 summaries

Published Applications AA:  
 1: /cgn2\_6/pctodata/1/pubpaas/US07\_PUBCOMB.pep: \*  
 2: /cgn2\_6/pctodata/1/pubpaas/PCT\_NEW\_PUB.pep: \*  
 3: /cgn2\_6/pctodata/1/pubpaas/US05\_NEW\_PUB.pep: \*  
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 20: /cgn2\_6/pctodata/1/pubpaas/US11\_NEW\_PUB.pep: \*  
 21: /cgn2\_6/pctodata/1/pubpaas/US60\_NEW\_PUB.pep: \*  
 22: /cgn2\_6/pctodata/1/pubpaas/US66\_PUBCOMB.pep: \*

**RESULTS**

US-09-910-406C-4 ; Sequence 4, Application US/09910406C  
; Publication No. US20030049277A1 ; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping ; TITLE OF INVENTION: Composition for Treatment of and Method  
; of Monitoring Hepatitis C Virus Using Interferon-tau  
; FILE REFERENCE: 5600-004.30 ; CURRENT APPLICATION NUMBER: US/09/910,406C  
; CURRENT FILING DATE: 2002-07-02 ; PRIORITY APPLICATION NUMBER: JP 317160  
; PRIORITY FILING DATE: 2000-10-17 ; SEQ ID NO: 4  
; LENGTH: 172 ; TYPE: PRT ; ORGANISM: Artificial Sequence  
; FEATURE: OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence  
; US-09-910-406C-4 ; Query Match Score 907; DB 10; Length 172;  
; Best Local Similarity 100.0%; Mismatches 0; Indels 0; Gaps 0;

**SUMMARIES**

result No.	Query Length	Match Length	DB ID	Description
1	907	100	0	US-09-910-406C-4 Sequence 4, Appli
2	907	100	0	Sequence 2, Appli
3	907	100	0	Sequence 3, Appli
4	907	100	0	Sequence 3, Appli
5	907	100	0	Sequence 3, Appli
6	907	100	0	Sequence 3, Appli
7	907	100	0	Sequence 3, Appli
8	907	100	0	Sequence 3, Appli
9	907	100	0	Sequence 3, Appli
10	907	100	0	Sequence 3, Appli
11	907	100	0	Sequence 3, Appli

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

**SUMMARIES**

result No.	Query Length	Match Length	DB ID	Description
1	907	100	0	US-09-910-406C-4 Sequence 4, Appli
2	907	100	0	Sequence 2, Appli
3	907	100	0	Sequence 3, Appli
4	907	100	0	Sequence 3, Appli
5	907	100	0	Sequence 3, Appli
6	907	100	0	Sequence 3, Appli
7	907	100	0	Sequence 3, Appli
8	907	100	0	Sequence 3, Appli
9	907	100	0	Sequence 3, Appli
10	907	100	0	Sequence 3, Appli
11	907	100	0	Sequence 3, Appli

QY 1 CYLSERLMLDARENLYKLUDRMLNRSPHSCLQRDKDGFGLPOBMVEGQLQKDQAFPVYEM 60  
Db 1 CYLSERLMLDARENLYKLUDRMLNRSPHSCLQRDKDGFGLPOBMVEGQLQKDQAFPVYEM 60